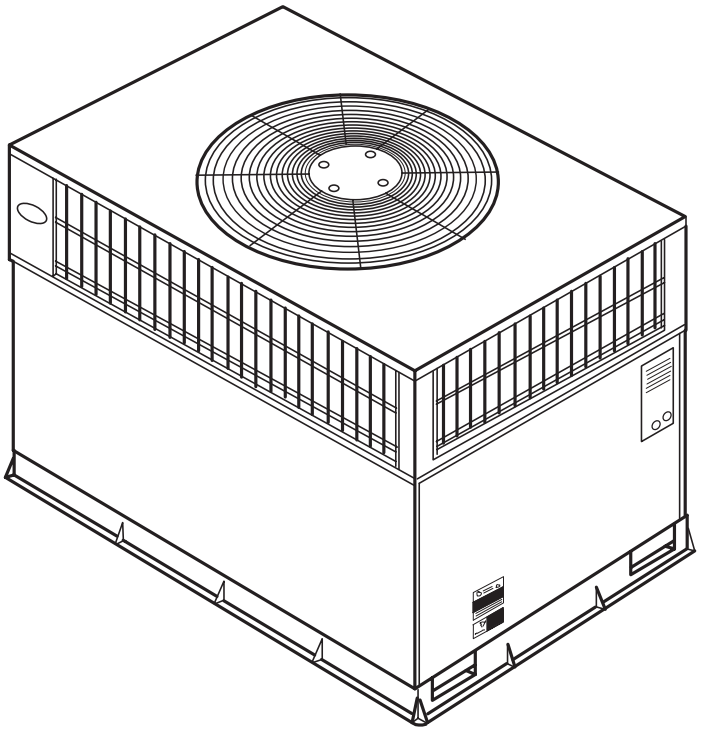
50SZ
SINGLE-PACKAGED
HEAT PUMP UNITS
2 to 5 Nominal Tons

Carrier®
Turn to the Experts℠

Product Data



UNIT 50SZ
(STANDARD)

Single-Packaged Heat Pump for Residential and Light Commercial Applications
- Low Sound Levels
- 13 SEER

Features/Benefits

One-piece heat pump with optional electric heater, low installation cost, dependable performance and easy maintenance.

Efficient operation

High-efficiency design with SEERs (Seasonal Energy Efficiency Ratios) of 13.0 and HSPFs (Heating Seasonal Performance Factors) of up to 7.7.

Easy Installation

Factory-assembled package is a compact, fully self-contained, heat pump unit that is pre-wired, pre-piped, and pre-charged for minimum installation expense. 50SZ units are available in a variety of standard capacity ranges with voltage options to meet residential and light commercial requirements. Units install easily on a rooftop or at ground-level.

Durable, dependable components

Scroll Compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Vibration isolation provides quiet operation. Compressors have internal high-pressure and overcurrent protection.

Direct-drive multi-speed, PSC (permanent split capacitor) blower motor is standard on all 50SZ models.

Direct-drive, PSC condenser-fan motors are designed to help reduce energy consumption and provide for cooling operation down to 40°F outdoor temperature. Motormaster® II low

ambient kit is available as a field-installed accessory and does not require a special motor.

Corporate thermostats work with Carrier's small packaged products as a system to promote year round comfort.

Refrigerant system is designed to provide dependability. Liquid refrigerant strainers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

Low Pressure/Loss of Charge Switch assures added safety and reliability for the compressor.

Indoor and outdoor coils are computer-designed for optimum heat transfer and cooling efficiency. The indoor coil is fabricated from copper tube and aluminum fins and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit. A FIOP (Factory-Installed Option) metal louvered grille is available on all models. Copper fin coils and pre-coated fin coils are available from the factory by special order. These coils are recommended in applications where aluminum fins are likely to be damaged due to corrosion. They are ideal for seacoast applications.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 72 dB. (See page 3.)

Easy to service cabinets provide easy single-panel accessibility to serviceable components during maintenance and installation. The unit base with integrated drain provides easy ground level installation with or without a mounting pad. Convenient handholds are provided to manipulate the unit on the jobsite. A nesting feature ensures a positive unit base to roof curb seal when the unit is roof mounted. A convenient 3/4-in. wide perimeter flange makes frame mounting on a rooftop easy.

Downflow operation is easily provided in the field to allow vertical ductwork connections. The unit base utilizes knockout style seals on the bottom openings to ensure a positive seal in the horizontal airflow mode.

Standard metal duct covers with insulation come with the unit and cover the duct openings. These can be left in place if the units are converted to downshot.

Cabinets are constructed of heavy-duty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours of salt spray. Interior surfaces are insulated with cleanable semi-rigid insulation board, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain minimizes standing water in the drain, which is provided with an external drain fitting.

Short-Cycling protection for the compressor is incorporated into our defrost control board ensuring a five minute delay (+/-2 minutes) before restarting compressor after shutdown for any reason.

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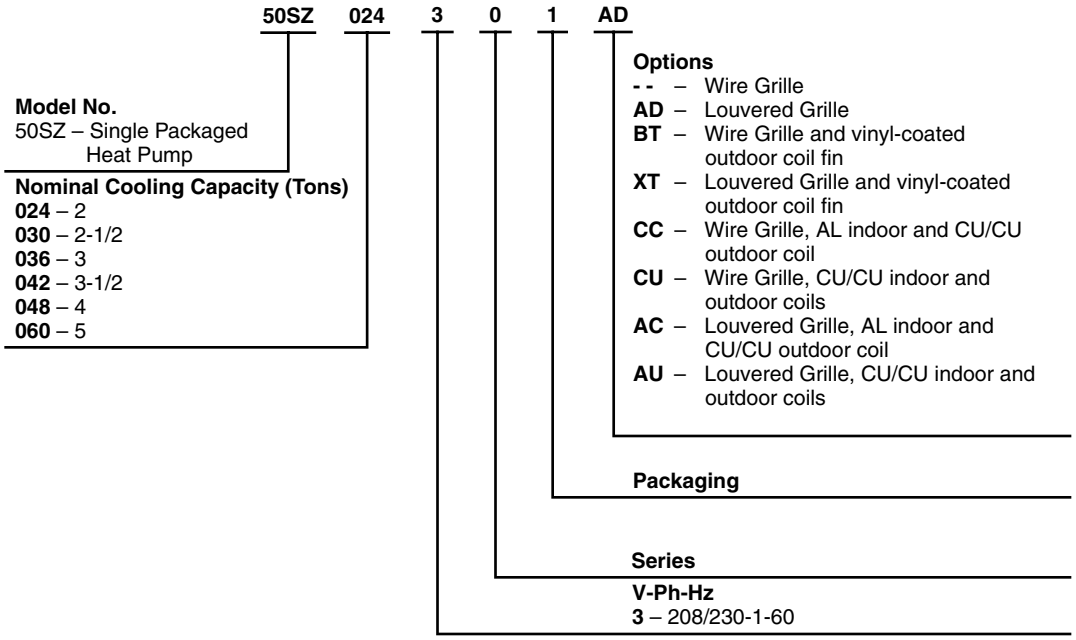
Model number nomenclature


50SZ 024 3 0 1 AD
Model No.
50SZ – Single Packaged Heat Pump
Nominal Cooling Capacity (Tons)
024 – 2
030 – 2-1/2
036 – 3
042 – 3-1/2
048 – 4
060 – 5
Options
- - – Wire Grille
AD – Louvered Grille
BT – Wire Grille and vinyl-coated outdoor coil fin
XT – Louvered Grille and vinyl-coated outdoor coil fin
CC – Wire Grille, AL indoor and CU/CU outdoor coil
CU – Wire Grille, CU/CU indoor and outdoor coils
AC – Louvered Grille, AL indoor and CU/CU outdoor coil
AU – Louvered Grille, CU/CU indoor and outdoor coils
Packaging
Series
V-Ph-Hz
3 – 208/230-1-60

AL — Aluminum
CU — Copper

ARI* capacities

COOLING CAPACITIES AND EFFICIENCIES

UNIT 50SZ	NOMINAL TONS	STANDARD CFM	NET COOLING CAPACITIES (Btuh)	SEER†	SOUND RATINGS‡ (dB)
024	2	800	24,000	13.0	72
030	2-1/2	1000	30,000	13.0	72
036	3	1200	36,000	13.0	72
042	3-1/2	1400	41,500	13.0	72
048	4	1600	47,000	13.0	78
060	5	1750	57,000	13.0	78

LEGEND

dB — Sound Levels (decibels)
COP — Coefficient of Performance
HSPF — Heating Season Performance Factor
db — Dry Bulb
SEER — Seasonal Energy Efficiency Ratio
wb — Wet Bulb

* Air Conditioning & Refrigeration Institute.

† Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or ARI Standard 210/240-03.

‡ Tested in accordance with ARI Standard 270-95 (not listed in ARI).

NOTES:

1. Ratings are net values, reflecting the effects of circulating fan heat. Ratings are based on:
   Cooling Standard: 80°F db, 67°F wb indoor entering-air temperature and 95°F db outdoor entering-air temperature.
2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

HEATING CAPACITIES AND EFFICIENCIES

UNIT 50SZ	HIGH HEAT CAPACITY (BTUH)@47°F	HIGH HEAT COP @47°F	LOW HEAT CAPACITY (BTUH)@17°F	LOW HEAT COP @17°F	HSPF
024	22,400	3.2	13,000	2.2	7.7
030	29,000	3.2	16,000	2.2	7.7
036	35,000	3.2	19,200	2.2	7.7
042	41,500	3.2	22,800	2.2	7.7
048	47,000	3.2	26,000	2.2	7.7
060	55,000	3.2	31,000	2.2	7.7

OUTDOOR SOUND: OCTAVE BAND DATA—DECIBELS

UNIT	50SZ					
Frequency (Hz)	024	030	036	042	048	060
125	55.9	54.7	57.8	58.4	67.8	64.8
250	57.0	60.0	62.4	63.1	68.9	66.5
500	63.9	66.6	69.5	66.2	71.7	70.4
1000	66.8	67.0	72.3	66.8	72.7	73.2
2000	63.3	63.7	69.0	63.6	69.2	69.6
4000	59.0	59.5	65.4	59.9	65.7	67.1
8000	52.9	52.1	57.4	54.1	58.5	60.6

Physical data

UNIT SIZE 50SZ	024	030	036	042	048	060
NOMINAL CAPACITY (ton)	2	2-1/2	3	3-1/2	4	5
OPERATING WEIGHT (lb.)	343	366	433	460	480	492
Compressor	Scroll					
Refrigerant (R-22) Quantity (lb.)	8.0	8.4	10.9	11.0	12.3	12.0
REFRIGERANT METERING DEVICE	Accurater					
Orifice ID (in.)	0.065	0.070	0.080	0.088	0.088	0.101
Orifice OD (in.)	.032(1).038(1)	.035(1).038(1)	.038 (2)	.046 (2)	.052 (2)	.057 (2)
CONDENSER COIL						
Rows…Fins/in.	2…21	2…21	2…21	2…21	2…21	2…21
Face Area (sq. ft.)	11.9	13.6	15.5	19.4	19.4	19.4
CONDENSER FAN						
Nominal Cfm	2700	2700	2800	2800	3300	3300
Diameter	22	22	22	22	22	22
Motor HP (RPM)	1/8 (825)	1/8 (825)	1/8 (825)	1/8 (825)	1/4 (1100)	1/4 (1100)
EVAPORATOR COIL						
Rows…Fins/in.	3…17	3…17	3…17	3…17	3…17	4…17
Face Area (sq. ft.)	3.7	3.7	4.7	4.7	5.6	5.6
EVAPORATOR BLOWER						
Nominal Airflow (Cfm)	800	1000	1200	1400	1600	1750
Size (in.)	10x10	10x10	11x10	11x10	11x10	11x10
Motor HP (RPM)	1/3 (1050)	1/3 (1050)	1/2 (1000)	1/2 (1075)	1/2 (1075)	1 (1040)
Return-Air Filters (in.)* Throwaway	20x24x1	20x24x1	24x36x1	24x36x1	24x36x1	24x36x1

* Air filter pressure drop for non-standard filters must not exceed 0.08 in. wg.

ELECTRIC HEAT PRESSURE DROP TABLES

Small Cabinet: 024-030

STATIC	CFM											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
5 kW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07
10 kW	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.09	0.10	0.11
15 kW	0.00	0.00	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20 kW	0.00	0.00	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19

Large Cabinet: 036-060

STATIC	CFM														
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5 kW	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
10 kW	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
15 kW	0.00	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
20 kW	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16

Options and accessories

Factory-installed options

Louvered grille provides hail and vandalism protection. A wire grille is standard on all models. See model number nomenclature for louvered grille options.

Coil options include copper/copper and vinyl-coated construction for refrigerant coils. Units are shipped standard with copper tube/aluminum fin construction. See model number nomenclature for coil options.

Field-installed accessories

Economizer with Solid-State Controls and Barometric Relief Dampers
Manual Air Damper (25% open)
Electric Heaters
Filter Rack
Flat Roof Curbs (8-in. and 14-in.)
Square-to-Round Duct Transition Kit
Thermostats
Controls Upgrade Kit
Crankcase Heater
Rigging Kit
Low Ambient Kit (Motormaster® II Control)
Solid-State Time Guard® II Device
Compressor Hard Start Kit

Economizer with solid-state controls and barometric relief dampers includes filter racks and provide outdoor air during cooling and reduce compressor operation.

Manual outside air damper includes hood and filter rack with adjustable damper blade for up to 25% outdoor air.

Electric heaters provide additional heat in the unit when required. Each package has a heater module that slides into the controls compartment. Heater sizes range from 5.0 to 20.0 kW. The electric heater design allows the use of a single-point power supply for the entire unit, resulting in lower installed costs.

Flat roof curbs in both 8 in. and 14 in. sizes are available for roof mounted applications.

Square-to-round duct transition kit enables 024-048 size units to be fitted to 14 in. round ductwork.

Thermostats provide control for the system heating and cooling functions. Thermostat models are available in both programmable and non-programmable versions.

Controls upgrade kit supplies high and low pressure safety protection and protects the unit from operating in unsuitable conditions.

Crankcase heater provides anti-floodback protection for low-load cooling applications.

Rigging kit includes lifting brackets which are inserted into the unit base rigging holds to lift unit for rooftop applications.

Low-ambient kit (Motormaster II control) allows the use of mechanical cooling down to outdoor temperatures as low as 0°F.

Filter rack features easy installation, serviceability, and high-filtering performance for vertical and horizontal applications.

Compressor Hard start kit gives a boost to the compressor motor at each start-up.

ELECTRIC HEATERS

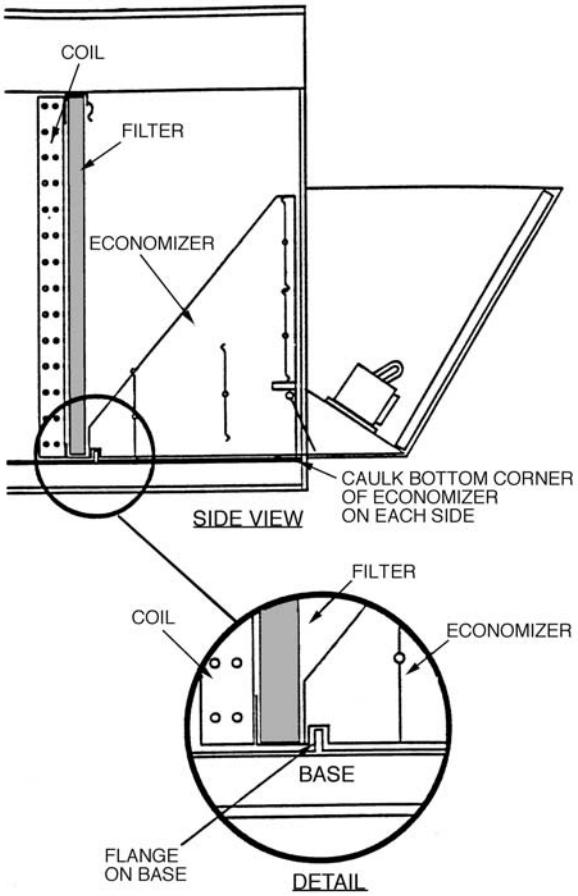
ODS CATALOG ORDERING NO.	NOMINAL CAPACITY (kW)	USED WITH SIZES					
		024	030	036	042	048	060
ELECTRIC HEATERS (208/230 — SINGLE PHASE — 60 Hz)							
CPHEATER052A00	5.0	X	X	X	X		
CPHEATER064A00	5.0					X	X
CPHEATER070A00	7.5	X	X	X	X	X	X
CPHEATER050A00	10.0	X	X	X	X	X	X
CPHEATER066A00	15.0		X	X	X	X	X
CPHEATER054A00	20.0				X	X	X

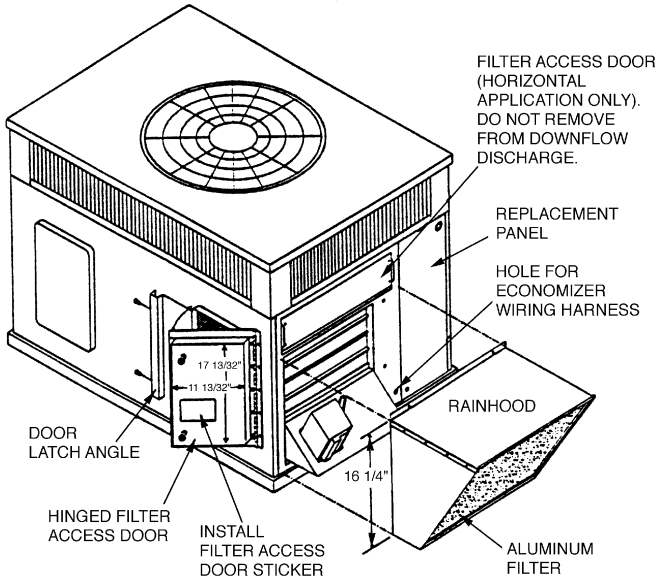
LEGEND
ODS — Order Distribution System
NOTE: Electric heaters are rated at 240 v and 480 v. Refer to Multiplication Factors table for other voltages.

Minimum Airflow for Reliable Electric Heater Operation

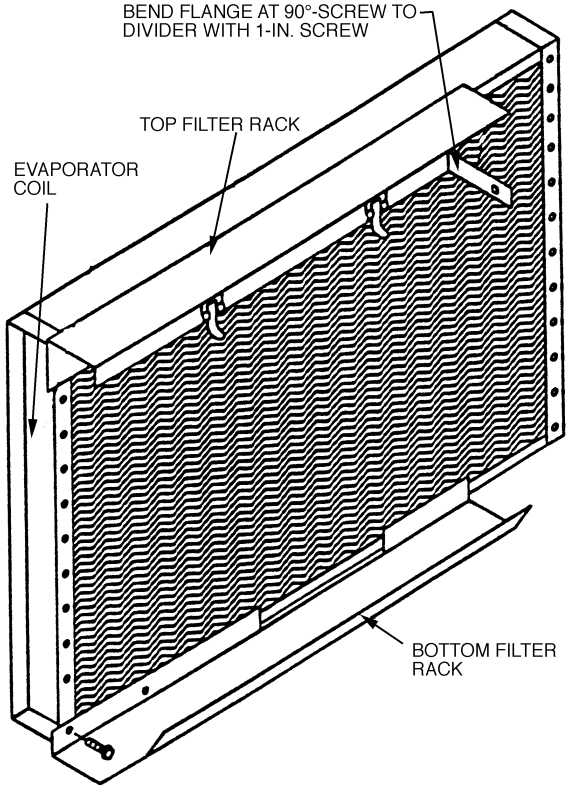
UNIT-50SZ	024	030	036	042	048	060
AIRFLOW	800	1000	1200	1400	1600	2000

ECONOMIZER

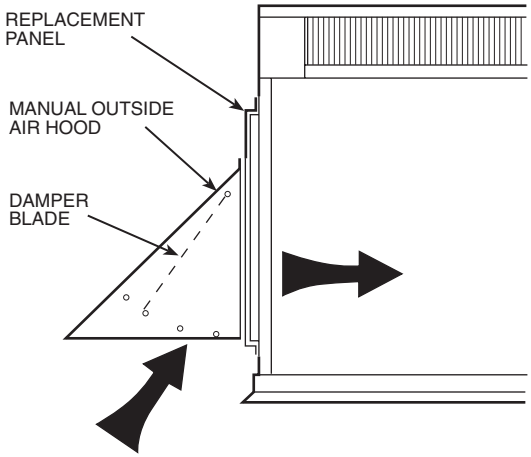




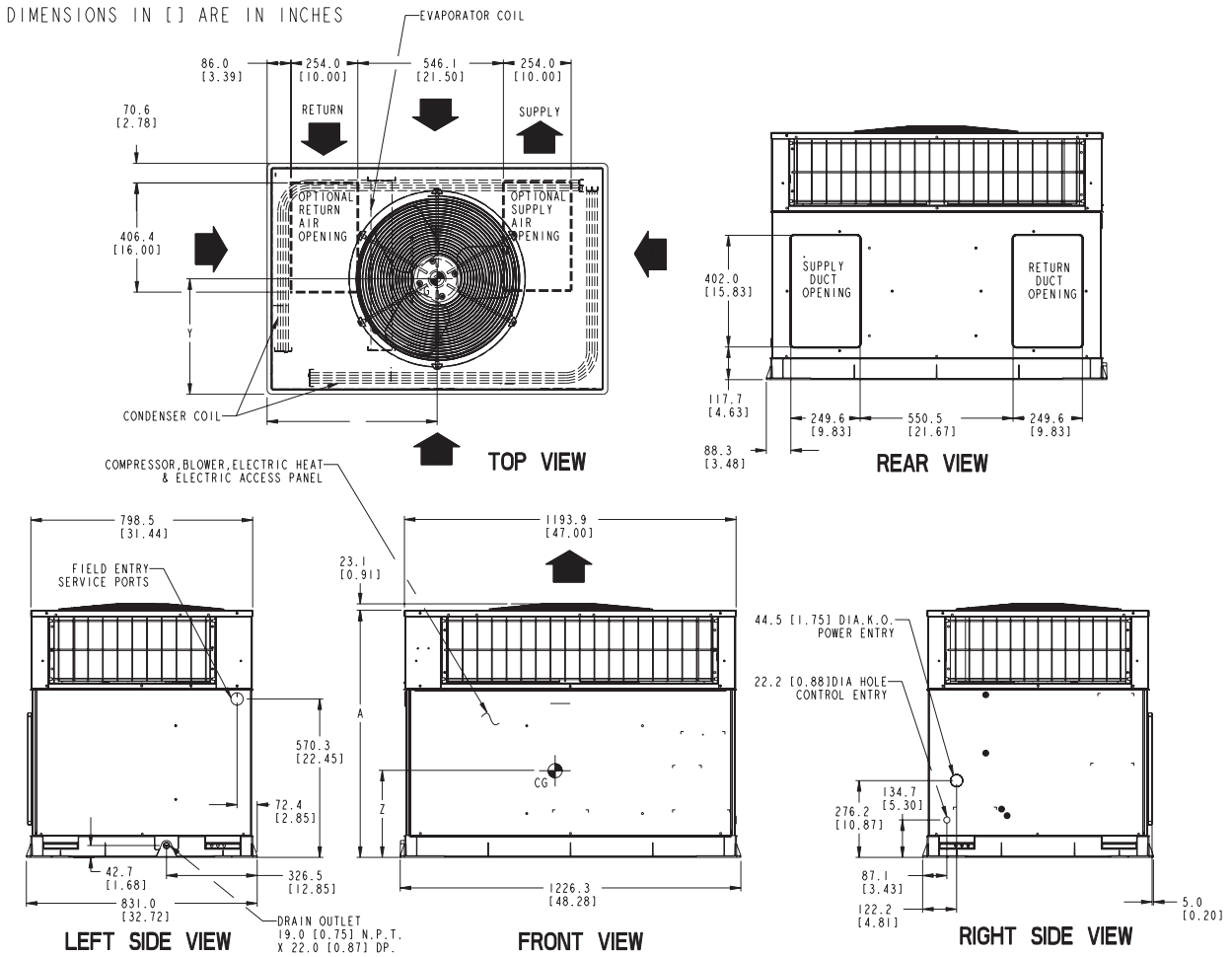
FILTER RACK



MANUAL OUTSIDE AIR DAMPER



Base unit dimensions—50SZ024-030



REQUIRED CLEARANCE TO COMBUSTIBLE MATL.
(Refer to Maximum Operating Clearances)

	INCHES [mm]
TOP OF UNIT	14.00 [355.6]
DUCT SIDE OF UNIT	2.00 [50.8]
SIDE OPPOSITE DUCTS	14.00 [355.6]
BOTTOM OF UNIT	0.50 [12.7]

NEC. REQUIRED CLEARANCES.

	INCHES [mm]
BETWEEN UNITS, POWER ENTRY SIDE	42.00 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36.00 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42.00 [1066.8]

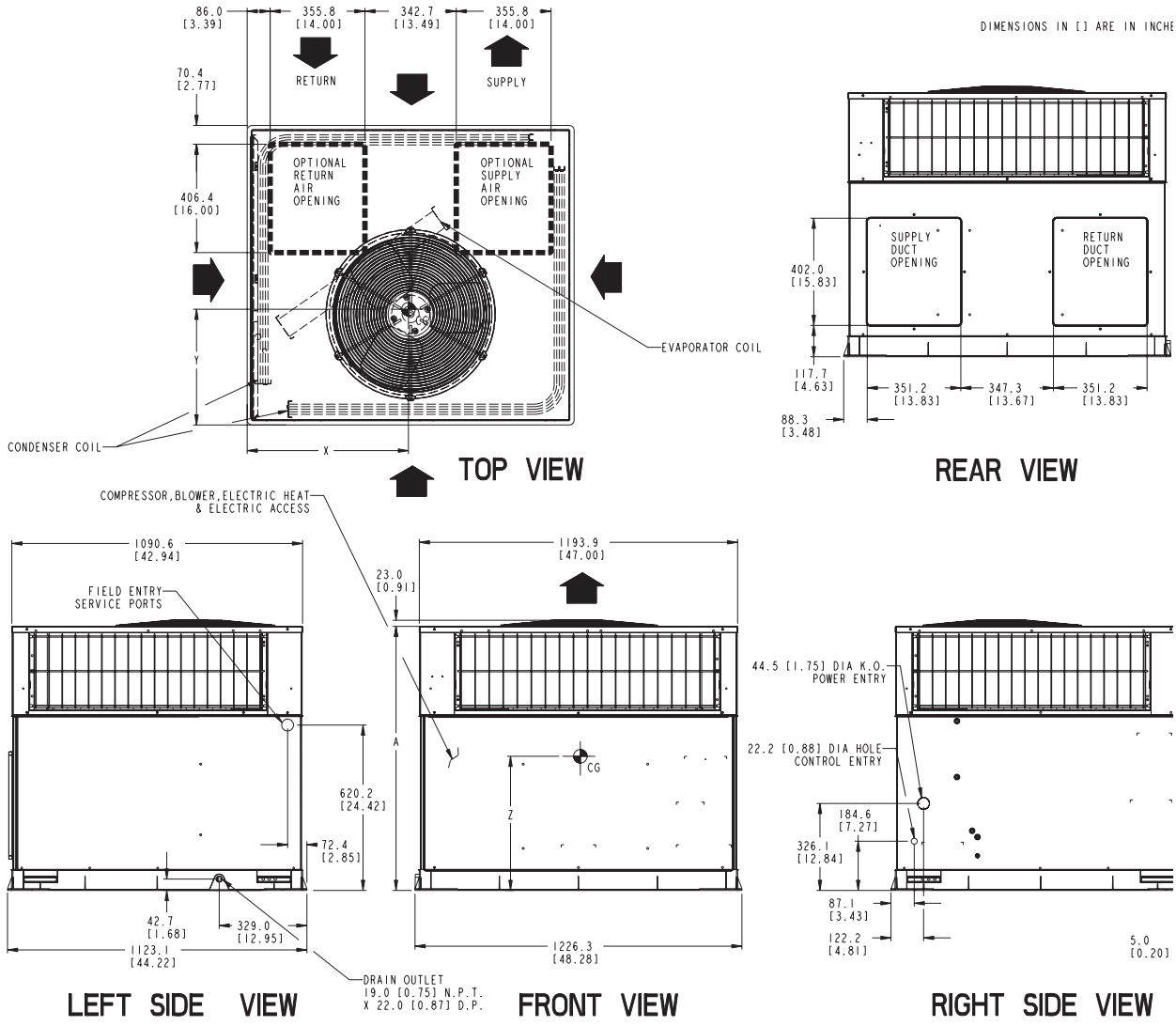
REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	INCHES [mm]
EVAP. COIL ACCESS SIDE	36.00 [914.0]
POWER ENTRY SIDE	42.00 [1066.8]
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	48.00 [1219.2]
SIDE OPPOSITE DUCTS	36.00 [914.0]
DUCT PANEL	12.00 [304.8] *

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 304.8 [12.00] FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPROMISE.

UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT mm (in.) "A"	CENTER OF GRAVITY mm (in.)		
		lb	kg		X	Y	Z
50SZ024	208/230-1-60	343	156	39.02 (991)	20.0 (508)	19.3 (490)	17.6 (447)
50SZ030	208/230-1-60	366	166	41.02 (1042)	20.0 (508)	14.0 (356)	13.0 (330)

Base unit dimensions—50SZ036-060



REQUIRED CLEARANCE TO COMBUSTIBLE MATL.
(Refer to Maximum Operating Clearances)

	INCHES [mm]
TOP OF UNIT	14.00 [355.6]
DUCT SIDE OF UNIT	2.00 [50.8]
SIDE OPPOSITE DUCTS	14.00 [355.6]
BOTTOM OF UNIT	0.50 [12.7]

NEC. REQUIRED CLEARANCES.

	INCHES [mm]
BETWEEN UNITS, POWER ENTRY SIDE	42.00 [1066.8]
UNIT AND UNGROUNDED SURFACES, POWER ENTRY SIDE	36.00 [914.0]
UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES, POWER ENTRY SIDE	42.00 [1066.8]

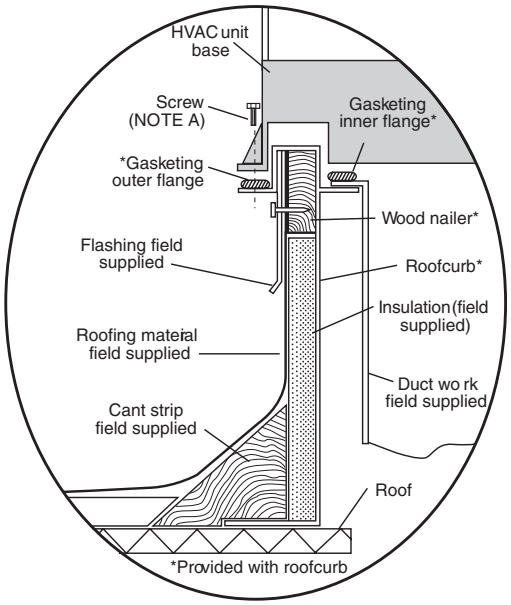
REQUIRED CLEARANCE FOR OPERATION AND SERVICING

	INCHES [m
EVAP. COIL ACCESS SIDE	36.00 [9
POWER ENTRY SIDE	42.00 [1(
(EXCEPT FOR NEC REQUIREMENTS)	
UNIT TOP	48.00 [12
SIDE OPPOSITE DUCTS	36.00 [9
DUCT PANEL	12.00 [3(

*MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 304.8 [12.00] WALL SYSTEM, THEN SYSTEM PERFORMANCE MAYBE COMPRO

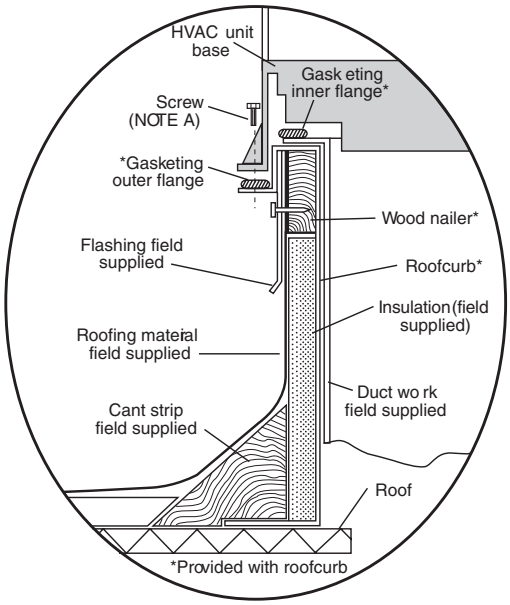
UNIT	ELECTRICAL CHARACTERISTICS	UNIT WEIGHT		UNIT HEIGHT mm (in.) "A"	CENTER OF GRAVITY mm (in.)		
		lb	kg		X	Y	Z
50SZ036	208/230-1-60	433	196	42.98 (1092)	21.0 (533)	20.5 (520)	16.6 (422)
50SZ042	208/230-1-60	460	209	46.98 (1193)	21.0 (533)	20.5 (520)	17.1 (434)
50SZ048	208/230-1-60	480	218	46.98 (1193)	21.0 (533)	20.0 (508)	17.4 (442)
50SZ060	208/230-1-60	492	223	46.98 (1193)	21.0 (533)	20.0 (508)	17.6 (447)

Accessory dimensions



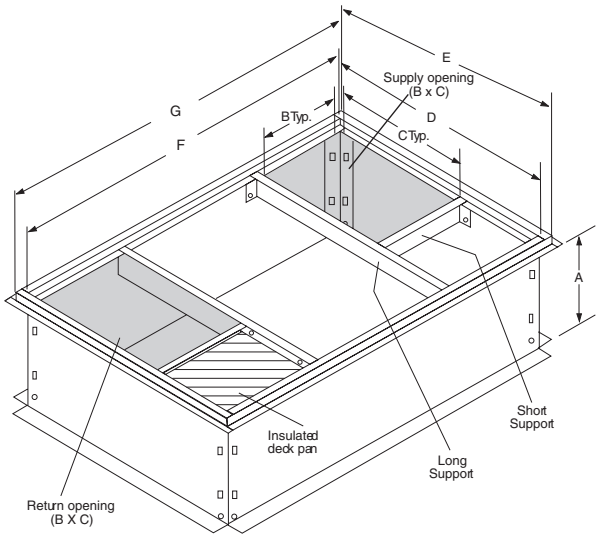
Roof Curb for Small Cabinet

Note A: When unit mounting screw is used retainer bracke t must also be used.



Roof Curb for Large Cabinet

Note A: When unit mounting screw is used retainer bracket must also be used.



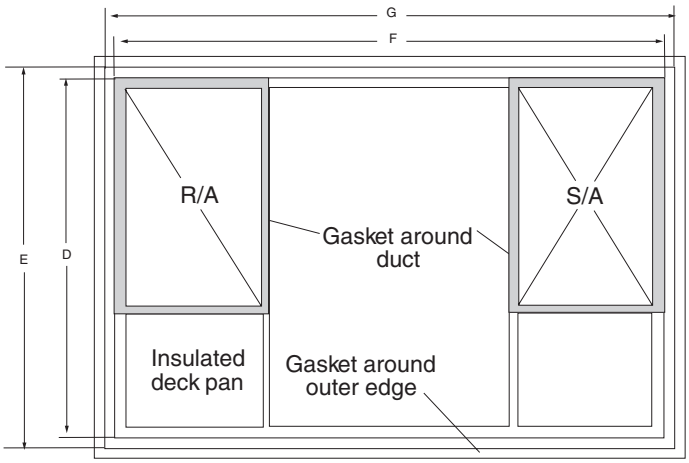
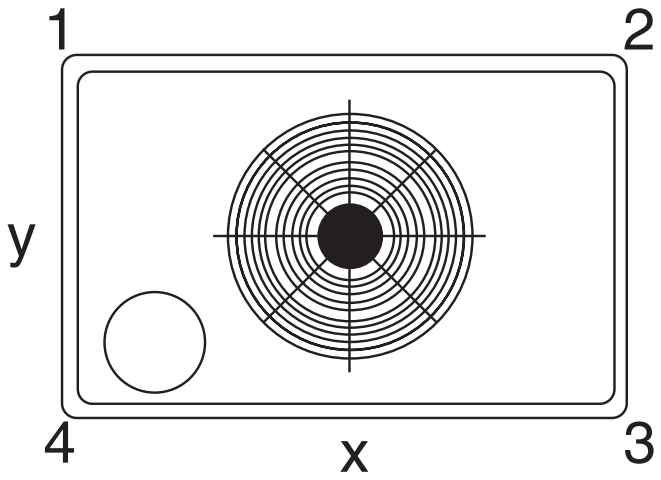


Fig. 4—Roof Curb Dimensions

UNIT SIZE	ODS CATALOG NO.	A IN. [MM]	B in. [mm]	C in. [mm]	D in. [mm]	E in. [mm]	F in. [mm]	G in. [mm]
50SZ024-030	CPRFCURB006A00	8 [203]	11[279]	16 1/2 [419]	28-3/4 [730]	30-3/8 [771]	44-5/16 [1126]	45-15/16 [1167]
	CPRFCURB007A00	14 [356]	11[279]	16 1/2 [419]	28-3/4 [730]	30-3/8 [771]	44-5/16 [1126]	45-15/16 [1167]
50SZ036-060	CPRFCURB008A00	8 [203]	16-3/16 [411]	17 3/8 [441]	40-1/4 [1022]	41-15/16 [1065]	44-7/16 [1129]	46-1/16 [1169]
	CPRFCURB009A00	14 [356]	16 3/16 [411]	17 3/8 [441]	40-1/4 [1022]	41-15/16 [1065]	44-7/16 [1129]	46-1/16 [1169]

NOTES:
1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied, as required, to unit being installed.
3. Dimensions in [ ] are in millimeters.
4. Roof curb is made of 16-gage steel.
5. Table lists only the dimensions, per part number, that have changed.
6. Attach ductwork to curb (flanges of duct rest on curb).
7. Insulated panels: 1-in. thick fiberglass 1 lb density.
8. Dimensions are in inches.
9. When unit mounting screw is used (see Note A), a retainer bracket must be used as well. This bracket must also be used when required by code for hurricane or seismic conditions. This bracket is available through Micrometl.

50SZ Corner weights (In Pounds)



CORNER WEIGHTS (Small Cabinet)				CORNER WEIGHTS (Large Cabinet)					
Model 50SZ	Unit	024	030	Model 50SZ	Unit	036	042	048	060
	Total Weight (lbs.)	343	366		Total Weight (lbs.)	433	460	480	492
	Corner Weight 1	69	74		Corner Weight 1	87	93	97	99
	Corner Weight 2	53	57		Corner Weight 2	68	72	74	76
	Corner Weight 3	83	88		Corner Weight 3	104	111	116	119
	Corner Weight 4	138	147		Corner Weight 4	174	184	193	198

Selection Procedure (with example)

I Determine cooling and heating requirements at design conditions:
Given:
Required Cooling Capacity (TC) . . . . . 28,000 Btuh
Sensible Heat Capacity (SHC) . . . . . 20,500 Btuh
Required Heating Capacity . . . . . 28,550 Btuh
Outdoor Entering Air Temperature . . . . . 95°F
Outdoor-Air Winter Design Temperature . . . . . 20°F
Indoor-Air Winter Design Temperature . . . . . 70°F
Indoor Entering-Air Temperature . . . . . .80°F edb
67°F ewb
Indoor-Air Quantity . . . . . 1125 cfm
External Static Pressure . . . . . 0.20 in. wg
Electrical Characteristics (V-Ph-Hz) 230-1-60
edb — entering dry bulb
ewb — entering wet bulb

II Select unit based on required cooling capacity.
Enter Cooling Extended Performance table at outdoor entering-air temperature of 95°F, indoor air entering at 1125 cfm and 67°F ewb (entering wet bulb). The unit will provide a total cooling capacity of 30,900 Btuh and a sensible heat capacity of 24,800 Btuh.
For indoor-air temperature other than 80°F edb (entering dry bulb), calculate sensible heat capacity correction, as required, using the formula found in Note 3 following the cooling capacities tables. NOTE: Unit ratings are net capacities.

III Select electric heat.
Enter the unit Heating Extended Performance table at 1125 cfm. At 70°F return indoor air and 20°F air entering outdoor coil, the integrated heating capacity is 16,200 Btuh. (Select integrated heating capacity value since deductions for outdoor-coil frost and defrosting have already been made. No correction is required.)
The required heating capacity is 28,550 Btuh. Therefore, 12,350 Btuh (28,550 – 16,200) additional electric heat is required.
Determine additional electric heat capacity in kW.

$$\frac{12{,}350 \text{ Btuh}}{3414 \text{ Btuh/kW}} = 3.6 \text{ kW of heat required}$$

Enter the Electric Heater table on page 5 for 208/230 v, single-phase, unit. The 5-kW heater at 240 v most closely satisfies the heating required. To calculate kW at 230 v, multiply the heater kW by multiplication factor 0.92 found in the Multiplication Factors table on page 17.
5 kW x 0.92 = 4.6 kW
4.6 kW x 3414 = 15,704 Btuh
Total unit heating capacity is 31,900 Btuh (16,200 + 15,704).

IV Determine fan speed and power requirements at design conditions.
Before entering the air delivery tables, calculate the total static pressure required.

Performance data

COOLING EXTENDED PERFORMANCE TABLE

50SZ024 (2 TONS)

Temp (F) Air Ent Outdoor Coil (Edb)		Indoor Entering Air—CFM/BF														
		700/0.08					800/0.10					900/0.11				
		Indoor Entering Air—Ewb (F)														
		57	62	63*	67	72	57	62	63*	67	72	57	62	63*	67	72
75	TC	21.0	23.2	23.6	25.6	29.0	22.0	23.9	24.2	26.1	28.0	22.9	24.5	24.7	26.5	28.3
	SHC	21.0	21.1	17.1	17.8	14.7	22.0	22.8	18.3	19.1	14.7	22.9	24.3	19.5	20.2	15.3
	kW	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9
85	TC	20.2	22.2	22.6	24.5	27.1	21.2	22.9	23.1	25.2	27.6	22.1	23.6	23.6	25.6	27.9
	SHC	20.2	20.7	16.6	17.4	13.9	21.2	22.3	17.9	18.7	14.7	22.1	23.4	19.0	20.0	15.4
	kW	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
95	TC	19.5	21.2	21.5	23.4	26.1	20.4	21.9	22.1	24.0	26.7	21.2	22.7	22.5	24.4	27.1
	SHC	19.5	20.2	16.2	16.9	13.6	20.4	21.7	17.4	18.2	14.4	21.2	22.5	18.5	19.5	15.2
	kW	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
105	TC	18.7	20.1	20.4	22.3	24.9	19.6	21.0	20.9	22.8	25.5	20.4	21.8	21.3	23.2	25.9
	SHC	18.7	19.6	15.7	16.4	13.1	19.6	20.8	16.9	17.7	14.0	20.4	21.6	18.0	19.0	14.8
	kW	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5
115	TC	17.8	19.0	19.2	21.0	23.6	18.6	20.0	19.7	21.5	24.1	19.4	20.8	20.1	21.9	24.5
	SHC	17.8	18.9	15.1	15.9	12.7	18.6	19.8	16.3	17.2	13.5	19.4	20.6	17.5	18.5	14.3
	kW	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.8
125	TC	16.8	18.0	17.9	19.7	22.2	17.6	18.9	18.3	20.1	22.6	18.3	19.6	18.7	20.5	23.0
	SHC	16.8	17.8	14.6	15.4	12.1	17.6	18.7	15.8	16.7	13.0	18.3	19.4	16.9	17.9	13.8
	kW	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.0

HEATING EXTENDED PERFORMANCE TABLE -10–20

50SZ024 (2 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Ent Indoor Coil			-10		0		10		17		20	
60	700	TC	7.6	7.0	9.6	8.8	11.6	10.7	13.3	12.1	14.1	12.8
		kW	1.42		1.48		1.58		1.65		1.67	
	800	TC	7.6	7.1	9.5	8.7	11.7	10.7	13.4	12.2	14.2	12.9
		kW	1.41		1.48		1.57		1.63		1.66	
	900	TC	7.7	7.1	9.6	8.8	11.8	10.8	13.5	12.3	14.3	12.9
		kW	1.40		1.47		1.55		1.61		1.63	
70	700	TC	7.3	6.7	9.1	8.4	11.2	10.3	12.9	11.8	13.7	12.4
		kW	1.53		1.59		1.68		1.75		1.79	
	800	TC	7.4	6.8	9.2	8.4	11.3	10.4	13.0	11.9	13.8	12.5
		kW	1.52		1.57		1.66		1.73		1.76	
	900	TC	7.4	6.9	9.2	8.5	14.9	13.7	16.4	15.0	17.5	15.9
		kW	1.51		1.56		1.65		1.72		1.75	
80	700	TC	7.0	6.5	8.9	8.2	10.9	10.0	12.5	11.4	13.3	12.1
		kW	1.61		1.72		1.79		1.87		1.91	
	800	TC	7.2	6.6	9.0	8.3	10.9	10.0	12.6	11.5	13.4	12.2
		kW	1.60		1.70		1.77		1.84		1.88	
	900	TC	6.9	6.4	9.1	8.3	11.0	10.1	12.7	11.5	13.5	12.2
		kW	1.59		1.68		1.75		1.83		1.86	

HEATING EXTENDED PERFORMANCE TABLE 30–60

50SZ024 (2 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Ent Indoor Coil			30		40		47		50		60	
60	875	TC	17.0	14.9	20.2	20.2	22.7	22.7	23.7	23.7	27.4	27.4
		kW	1.75		1.82		1.87		1.89		1.98	
	1000	TC	17.1	15.0	20.3	20.3	22.8	22.8	23.8	23.8	27.5	27.5
		kW	1.72		1.78		1.81		1.83		1.89	
	1125	TC	17.2	15.0	20.4	20.4	22.9	22.9	23.9	23.9	27.5	27.5
		kW	1.69		1.74		1.77		1.78		1.83	
70	875	TC	16.6	14.6	19.8	19.8	22.3	22.3	23.3	23.3	27.0	27.0
		kW	1.90		1.99		2.05		2.08		2.17	
	1000	TC	16.7	14.6	19.9	19.9	22.4	22.4	23.4	23.4	27.1	27.1
		kW	1.86		1.94		1.99		2.01		2.09	
	1125	TC	21.5	18.8	26.2	26.2	23.5	23.5	27.1	27.1	27.1	27.1
		kW	1.83		1.90		1.94		1.96		2.02	
80	875	TC	16.2	14.2	19.4	19.4	21.8	21.8	22.8	22.8	26.5	26.5
		kW	2.04		2.16		2.24		2.27		2.39	
	1000	TC	16.3	14.3	19.5	19.5	21.9	21.9	23.0	23.0	26.7	26.7
		kW	2.00		2.11		2.17		2.20		2.30	
	1125	TC	16.4	14.4	19.6	19.6	22.1	22.1	23.1	23.1	26.7	26.7
		kW	1.98		2.07		2.13		2.15		2.23	

See Legend and Notes on page 17. *At 75°F entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F entering dry bulb.

Performance data (cont)

COOLING EXTENDED PERFORMANCE TABLE

50SZ030 (2-1/2 TONS)

Temp (F) Air Ent Outdoor Coil (Edb)		Indoor Entering Air—CFM/BF														
		875/0.08					1000/0.09					1125/0.10				
		Indoor Entering Air—Ewb (F)														
		57	62	63*	67	72	57	62	63*	67	72	57	62	63*	67	72
75	TC	26.3	29.1	29.6	32.1	33.9	27.6	29.9	30.4	32.7	34.2	28.6	30.7	31.0	33.1	34.3
	SHC	26.3	26.3	21.3	22.1	17.2	27.6	28.1	22.8	23.6	17.8	28.6	29.7	24.2	24.8	18.3
	kW	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4
85	TC	25.4	27.7	28.3	30.7	33.2	26.6	28.6	29.0	31.5	33.6	27.6	29.5	29.6	32.1	33.9
	SHC	25.4	25.8	20.8	21.7	17.3	26.6	27.6	22.3	23.3	18.1	27.6	28.8	23.8	24.9	18.9
	kW	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6
95	TC	24.4	26.4	26.8	29.3	32.7	25.5	27.3	27.5	30.0	32.9	26.5	28.1	28.0	30.6	33.4
	SHC	24.4	25.2	20.2	21.2	16.9	25.5	26.6	21.7	22.8	17.9	26.5	27.9	23.2	24.3	18.8
	kW	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8
105	TC	23.4	25.0	25.4	27.7	31.1	24.5	25.9	26.0	28.3	31.8	25.4	26.9	26.4	28.9	32.3
	SHC	23.4	24.4	19.6	20.6	16.3	24.5	25.8	21.1	22.2	17.3	25.4	26.7	22.5	23.7	18.3
	kW	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.1	3.1
115	TC	22.3	23.7	23.8	26.1	29.3	23.4	24.7	24.4	26.7	30.0	24.2	25.7	24.8	27.1	30.5
	SHC	22.3	23.4	19.0	20.0	15.7	23.4	24.6	20.5	21.6	16.7	24.2	25.5	21.9	23.1	17.7
	kW	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.4	3.4
125	TC	21.1	22.3	22.1	24.4	27.6	22.1	23.4	22.6	24.9	28.1	23.0	24.3	23.1	25.4	28.6
	SHC	21.1	22.2	18.3	19.4	15.1	22.1	23.3	19.8	20.9	16.1	23.0	24.2	21.1	22.4	17.1
	kW	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.7	3.7

HEATING EXTENDED PERFORMANCE TABLE -10–20

50SZ030 (2-1/2 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			-10		0		10		17		20	
60	875	TC	9.6	8.9	11.9	10.9	14.4	13.2	16.2	14.8	17.4	15.8
		kW	1.74		1.84		1.94		2.00		2.04	
	1000	TC	9.7	8.9	11.9	11.0	14.4	13.2	16.3	14.9	17.5	15.8
		kW	1.72		1.82		1.91		1.96		2.00	
	1125	TC	9.7	9.0	12.0	11.0	14.5	13.3	16.3	14.9	17.5	15.9
		kW	1.71		1.81		1.89		1.93		1.96	
70	875	TC	9.4	8.7	11.5	10.6	14.0	12.8	15.9	14.5	17.1	15.5
		kW	1.88		1.96		2.08		2.16		2.22	
	1000	TC	9.4	8.7	11.6	10.6	14.1	12.9	16.0	14.6	17.2	15.6
		kW	1.86		1.94		2.05		2.13		2.17	
	1125	TC	9.4	8.7	11.6	10.7	14.9	13.7	16.4	15.0	17.5	15.9
		kW	1.83		1.92		2.03		2.10		2.15	
80	875	TC	9.2	8.5	11.1	10.2	13.6	12.5	15.5	14.1	16.7	15.1
		kW	1.89		2.10		2.22		2.33		2.39	
	1000	TC	9.4	8.7	11.2	10.3	13.7	12.6	15.6	14.2	16.8	15.2
		kW	1.88		2.07		2.19		2.29		2.35	
	1125	TC	9.4	8.7	11.2	10.3	13.8	12.6	15.7	14.3	16.9	15.3
		kW	1.85		2.05		2.17		2.26		2.33	

HEATING EXTENDED PERFORMANCE TABLE 30–60

50SZ030 (2-1/2 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			30		40		47		50		60	
60	875	TC	21.6	18.9	25.4	25.4	29.3	29.3	30.6	30.6	35.3	35.3
		kW	2.18		2.31		2.42		2.46		2.58	
	1000	TC	21.7	19.0	25.6	25.6	29.4	29.4	30.8	30.8	36.3	36.3
		kW	2.12		2.24		2.35		2.37		2.43	
	1125	TC	20.9	18.3	25.7	25.7	29.5	29.5	30.8	30.8	35.4	35.4
		kW	2.07		2.19		2.29		2.31		2.41	
70	875	TC	21.3	18.7	26.2	26.2	28.9	28.9	30.2	30.2	34.9	34.9
		kW	2.39		2.56		2.66		2.70		2.84	
	1000	TC	21.4	18.7	26.3	26.3	29.0	29.0	30.3	30.3	34.9	34.9
		kW	2.33		2.48		2.58		2.61		2.73	
	1125	TC	21.5	18.8	26.2	26.2	30.4	30.4	35.0	35.0	35.0	35.0
		kW	2.28		2.40		2.51		2.54		2.65	
80	875	TC	20.9	18.3	25.8	25.8	29.7	29.7	31.5	31.5	34.4	34.4
		kW	2.60		2.81		2.97		2.99		3.11	
	1000	TC	21.0	18.4	26.0	26.0	30.1	30.1	29.9	29.9	34.5	34.5
		kW	2.54		2.73		2.82		2.86		2.99	
	1125	TC	21.1	18.5	26.0	26.0	28.7	28.7	30.0	30.0	34.6	34.6
		kW	2.50		2.67		2.76		2.79		2.90	

See Legend and Notes on page 17. *At 75°F entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F entering dry bulb.

Performance data (cont)

COOLING EXTENDED PERFORMANCE TABLE

50SZ036 (3 TONS)

Temp (F) Air Ent Outdoor Coil (Edb)		Indoor Entering Air—CFM/BF														
		1050/0.07					1200/0.08					1350/0.10				
		Indoor Entering Air—Ewb (F)														
		57	62	63*	67	72	57	62	63*	67	72	57	62	63*	67	72
75	TC	32.8	35.1	35.8	38.8	40.9	34.5	36.2	36.8	39.6	41.5	35.9	37.3	37.5	40.0	41.8
	SHC	32.8	31.9	25.8	26.9	22.5	34.5	34.5	27.7	28.7	21.6	35.9	36.7	29.5	30.2	22.3
	kW	2.6	2.6	2.6	2.7	2.6	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8
85	TC	31.4	33.3	34.0	37.1	40.5	33.0	34.4	34.9	38.1	40.9	34.4	35.7	35.6	38.9	41.4
	SHC	31.4	31.0	24.9	26.2	21.0	33.0	33.5	26.8	28.2	22.0	34.4	35.1	28.6	30.1	22.9
	kW	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1
95	TC	30.0	31.5	32.1	35.1	39.4	31.5	32.7	32.9	36.0	40.3	32.8	34.0	33.5	36.7	40.9
	SHC	30.0	30.1	24.1	25.3	20.4	31.5	32.2	25.9	27.4	21.7	32.8	33.5	27.7	29.3	22.8
	kW	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.4	3.4
105	TC	28.5	29.6	30.1	33.0	37.2	30.0	31.1	30.8	33.8	38.1	31.2	32.3	31.4	34.4	38.8
	SHC	28.5	29.1	23.2	24.5	19.6	30.0	30.6	25.1	26.5	20.9	31.2	31.8	26.8	28.3	22.1
	kW	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.7	3.7
115	TC	27.9	29.3	29.4	32.4	34.8	28.3	29.4	28.7	31.5	35.6	29.5	30.5	29.3	32.1	36.3
	SHC	27.9	30.5	24.1	25.5	18.7	28.3	28.9	24.2	25.6	20.0	29.5	30.1	25.9	27.4	21.2
	kW	3.8	3.8	3.8	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.0	3.9	4.0	4.0
125	TC	26.5	29.1	28.7	31.8	32.4	26.7	27.4	29.0	30.7	33.1	27.0	28.7	29.2	29.8	33.7
	SHC	28.1	28.6	23.0	24.4	17.8	29.5	26.9	26.8	26.6	19.1	27.7	28.2	28.7	26.5	20.3
	kW	4.2	4.2	4.2	4.2	4.2	4.3	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.4

HEATING EXTENDED PERFORMANCE TABLE -10–20

50SZ036 (3 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			-10		0		10		17		20	
60	1050	TC	10.9	10.1	14.0	12.9	17.2	15.8	19.5	17.8	20.8	18.9
		kW	2.03		2.16		2.27		2.34		2.39	
	1200	TC	11.0	10.2	14.2	13.0	17.3	15.9	19.6	17.9	20.9	19.0
		kW	2.07		2.19		2.29		2.36		2.39	
	1350	TC	11.6	10.7	14.7	13.5	17.8	16.3	20.1	18.3	21.3	19.4
		kW	2.16		2.28		2.37		2.42		2.46	
70	1050	TC	9.9	9.2	13.2	12.2	16.6	15.2	19.0	17.3	20.3	18.4
		kW	2.13		2.31		2.45		2.54		2.60	
	1200	TC	10.1	9.3	13.4	12.3	16.8	15.4	19.2	17.5	20.5	18.6
		kW	2.18		2.34		2.47		2.56		2.61	
	1350	TC	10.5	9.7	13.9	12.8	17.3	15.8	19.7	17.9	20.9	19.0
		kW	2.27		2.43		2.55		2.63		2.67	
80	1050	TC	8.7	8.1	12.1	11.1	15.8	14.5	18.3	16.7	19.7	17.8
		kW	2.21		2.45		2.62		2.74		2.81	
	1200	TC	9.2	8.5	12.5	11.5	16.0	14.7	18.5	16.9	19.9	18.0
		kW	2.24		2.47		2.65		2.76		2.82	
	1350	TC	9.8	9.1	13.0	11.9	16.5	15.2	19.1	17.4	20.4	18.5
		kW	2.31		2.56		2.73		2.83		2.89	

HEATING EXTENDED PERFORMANCE TABLE 30–60

50SZ036 (3 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			30		40		47		50		60	
60	1050	TC	25.5	22.4	31.1	31.1	35.5	35.5	37.3	37.3	43.5	43.5
		kW	2.56		2.75		2.89		2.93		3.12	
	1200	TC	25.7	22.5	31.3	31.3	35.8	35.8	37.6	37.6	43.9	43.9
		kW	2.55		2.72		2.85		2.88		3.05	
	1350	TC	26.2	23.0	31.9	31.9	36.5	36.5	38.4	38.4	42.4	42.4
		kW	2.61		2.76		2.85		2.87		2.92	
70	1050	TC	24.9	21.8	30.2	30.2	34.6	34.6	36.4	36.4	42.6	42.6
		kW	2.79		3.00		3.16		3.21		3.39	
	1200	TC	25.1	22.0	30.5	30.5	35.0	35.0	36.7	36.7	42.9	42.9
		kW	2.78		2.97		3.11		3.15		3.32	
	1350	TC	25.6	22.4	31.1	31.1	35.6	35.6	37.3	37.3	43.5	43.5
		kW	2.83		3.01		3.14		3.17		3.34	
80	1050	TC	24.4	21.4	29.5	29.5	33.7	33.7	35.5	35.5	41.5	41.5
		kW	3.04		3.26		3.45		3.51		3.70	
	1200	TC	24.5	21.5	29.7	29.7	34.1	34.1	35.8	35.8	42.0	42.0
		kW	3.02		3.23		3.40		3.45		3.62	
	1350	TC	25.0	21.9	30.3	30.3	34.7	34.7	36.4	36.4	42.5	42.5
		kW	3.08		3.27		3.42		3.46		3.62	

See Legend and Notes on page 17. *At 75°F entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F entering dry bulb.

Performance data (cont)

COOLING EXTENDED PERFORMANCE TABLE

50SZ042 (3-1/2 TONS)

Temp (F) Air Ent Outdoor Coil (Edb)		Indoor Entering Air—CFM/BF														
		1225/0.11					1400/0.12					1575/0.14				
		Indoor Entering Air—Ewb (F)														
		57	62	63*	67	72	57	62	63*	67	72	57	62	63*	67	72
75	TC	36.8	40.2	41.7	42.5	45.4	38.2	41.8	41.1	45.3	45.5	39.3	40.7	41.1	44.4	46.3
	SHC	36.8	38.5	28.5	28.5	21.8	38.2	40.0	29.8	31.5	23.0	39.3	37.4	31.0	32.2	24.1
	kW	3.1	3.3	3.3	3.2	3.6	3.2	3.3	3.3	3.3	3.3	3.3	3.4	3.5	3.4	3.4
85	TC	35.4	38.1	40.0	41.6	44.3	36.8	38.9	40.5	42.1	44.8	38.0	40.2	40.9	43.8	45.2
	SHC	35.4	36.4	27.7	28.2	22.0	36.8	38.3	29.6	30.2	23.4	38.0	39.5	31.6	32.8	24.9
	kW	3.5	3.4	3.4	3.4	3.6	3.6	3.5	3.5	3.6	3.5	3.7	3.6	3.6	3.6	3.6
95	TC	34.1	37.2	38.0	40.8	43.8	35.4	38.6	38.8	41.5	44.0	36.5	39.6	37.9	42.0	44.4
	SHC	34.1	35.5	26.9	27.9	21.9	35.4	36.9	28.9	30.0	23.0	36.5	37.8	30.0	32.1	24.2
	kW	3.9	3.7	3.7	3.7	3.7	4.0	3.8	3.8	3.8	3.8	4.1	3.8	3.8	3.9	3.9
105	TC	32.4	35.1	35.6	38.2	40.7	33.7	36.5	36.2	38.8	41.2	34.7	35.4	34.7	37.4	41.4
	SHC	32.4	33.6	25.8	26.9	20.8	33.7	34.9	27.8	29.0	21.8	34.7	33.8	28.5	29.8	22.3
	kW	4.0	4.0	4.0	4.0	4.0	4.1	4.0	4.0	4.1	4.1	4.2	4.1	4.1	4.1	4.2
115	TC	30.1	33.4	33.5	36.1	37.3	31.3	32.9	32.4	35.0	39.0	32.3	33.9	31.6	34.0	38.0
	SHC	30.1	31.9	25.0	26.0	18.9	31.3	31.5	26.2	27.3	21.3	32.3	32.4	30.2	32.5	22.1
	kW	4.4	4.3	4.3	4.4	4.3	4.5	4.7	4.4	4.4	4.5	4.6	4.8	4.8	4.8	4.9
125	TC	27.9	29.6	28.4	32.4	34.2	32.2	29.9	28.6	31.2	34.1	29.7	30.8	29.0	31.7	34.1
	SHC	27.9	28.3	24.3	24.7	19.2	18.9	28.6	24.5	25.7	19.1	29.7	29.4	26.7	27.5	17.8
	kW	4.8	4.9	4.9	4.8	5.1	5.0	4.7	4.7	4.8	5.1	5.2	4.9	4.8	4.8	4.9

HEATING EXTENDED PERFORMANCE TABLE -10–20

50SZ042 (3-1/2 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			-10		0		10		17		20	
60	1225	TC	13.8	12.8	17.1	15.7	20.5	18.8	23.1	21.1	24.7	22.4
		kW	2.50		2.63		2.76		2.85		2.91	
	1400	TC	13.9	12.8	17.2	15.8	20.6	18.9	23.3	21.3	24.9	22.6
		kW	2.48		2.60		2.72		2.81		2.86	
	1575	TC	14.0	12.9	16.8	15.5	20.6	19.0	23.4	21.4	25.0	22.7
		kW	2.46		2.58		2.68		2.77		2.82	
70	1225	TC	13.1	12.1	16.5	15.2	20.1	18.5	22.7	20.7	24.2	22.0
		kW	2.64		2.83		2.99		3.09		3.15	
	1400	TC	13.2	12.2	16.6	15.3	20.2	18.6	22.8	20.8	24.3	22.1
		kW	2.63		2.79		2.94		3.04		3.10	
	1575	TC	13.3	12.3	16.7	15.4	20.3	18.6	22.9	20.9	24.4	22.2
		kW	2.61		2.77		2.91		3.00		3.05	
80	1225	TC	12.0	11.1	15.8	14.5	19.6	18.0	22.4	20.4	23.8	21.6
		kW	2.74		3.01		3.22		3.36		3.42	
	1400	TC	12.1	11.2	15.9	14.7	19.0	17.4	22.4	20.5	23.9	21.6
		kW	2.73		2.99		3.18		3.30		3.36	
	1575	TC	12.3	11.3	16.1	14.8	19.9	18.2	22.5	20.5	23.9	21.7
		kW	2.73		2.96		3.15		3.26		3.31	

HEATING EXTENDED PERFORMANCE TABLE 30–60

50SZ042 (3-1/2 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			30		40		47		50		60	
60	1225	TC	30.4	26.7	37.1	37.1	39.7	39.7	41.6	41.6	48.2	48.2
		kW	3.11		3.29		3.44		3.51		3.75	
	1400	TC	30.6	26.8	37.2	37.2	40.0	40.0	41.9	41.9	48.2	48.2
		kW	3.03		3.23		3.34		3.40		3.62	
	1575	TC	30.8	27.0	35.3	35.3	40.1	40.1	41.9	41.9	48.1	48.1
		kW	2.97		3.13		3.27		3.31		3.52	
70	1225	TC	29.8	26.1	36.2	36.2	41.3	41.3	43.2	43.2	47.6	47.6
		kW	3.38		3.61		3.79		3.87		4.07	
	1400	TC	29.9	26.2	36.5	36.5	41.5	41.5	41.1	41.1	47.7	47.7
		kW	3.30		3.49		3.69		3.69		3.93	
	1575	TC	30.1	26.4	36.6	36.6	39.4	39.4	41.3	41.3	47.6	47.6
		kW	3.23		3.43		3.55		3.61		3.83	
80	1225	TC	29.2	25.6	35.5	35.5	40.5	40.5	42.4	42.4	46.8	46.8
		kW	3.67		3.93		4.13		4.20		4.43	
	1400	TC	29.4	25.7	35.7	35.7	40.7	40.7	42.7	42.7	47.0	47.0
		kW	3.59		3.82		4.00		4.08		4.27	
	1575	TC	29.5	25.8	35.9	35.9	41.4	41.4	43.5	43.5	47.6	47.6
		kW	3.53		3.74		3.86		3.89		4.07	

See Legend and Notes on page 17. *At 75°F entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F entering dry bulb.

Performance data (cont)

COOLING EXTENDED PERFORMANCE TABLE

50SZ048 (4 TONS)

Temp (F) Air Ent Outdoor Coil (Edb)		Indoor Entering Air—CFM/BF															
		1400/0.07					1600/0.08					1800/0.09					
		Indoor Entering Air—Ewb (F)															
		57	62	63*	67	72	57	62	63*	67	72	57	62	63*	67	72
75	TC	42.5	45.5	46.3	50.1	53.6	44.4	46.9	47.4	51.1	54.2	46.1	48.2	48.3	51.8	54.6
	SHC	42.5	41.7	33.5	34.7	26.6	44.4	44.8	35.8	37.0	27.7	46.1	47.3	38.1	39.1	28.7
	kW	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.6	3.6	3.6	3.6	3.6	3.7
85	TC	41.0	43.6	44.2	48.1	52.6	42.9	45.0	45.3	49.2	53.4	44.5	46.5	46.2	50.1	53.9
	SHC	41.0	40.7	32.5	34.1	26.4	42.9	43.6	34.9	36.5	27.7	44.5	45.6	37.1	38.9	28.9
	kW	3.8	3.8	3.8	3.8	3.8	3.8	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0	4.0
95	TC	39.4	41.6	42.2	45.9	50.8	41.2	43.0	43.1	47.0	51.7	42.8	44.6	44.6	47.8	52.4
	SHC	39.4	39.7	31.6	33.1	25.9	41.2	42.2	34.0	35.7	27.4	42.8	43.8	37.7	38.1	28.7
	kW	4.1	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.3	4.3	4.3	4.3	5.6	4.4	4.4
105	TC	37.7	39.5	39.9	43.6	48.5	39.3	41.3	40.9	44.5	49.5	40.9	42.7	41.6	45.3	50.2
	SHC	37.7	38.5	30.7	32.2	25.1	39.3	40.5	33.0	34.7	26.7	40.9	41.9	35.2	37.1	28.1
	kW	4.5	4.5	4.5	4.6	4.6	4.5	4.6	4.6	4.7	4.7	4.7	4.7	4.7	4.8	4.8
115	TC	35.9	37.5	37.5	41.2	45.8	37.5	39.2	38.4	42.1	47.0	39.1	40.8	39.1	42.8	47.7
	SHC	35.9	36.8	29.7	31.3	24.1	37.5	38.4	31.9	33.7	25.9	39.1	40.0	34.1	36.1	27.4
	kW	4.9	4.9	4.9	5.0	5.1	5.0	5.0	5.0	5.1	5.1	5.1	5.1	5.1	5.2	5.2
125	TC	34.0	35.5	35.0	38.4	43.2	35.6	37.1	35.8	39.2	44.2	36.8	38.5	36.5	39.9	44.9
	SHC	34.0	34.9	28.6	30.2	23.2	35.6	36.4	30.9	32.6	24.9	36.8	37.7	33.0	34.9	26.5
	kW	5.4	5.4	5.4	5.4	5.5	5.5	5.5	5.5	5.5	5.6	5.6	5.6	5.6	5.6	5.7

HEATING EXTENDED PERFORMANCE TABLE -10–20

50SZ048 (4 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			-10		0		10		17		20	
60	1400	TC	14.7	13.6	18.6	17.1	23.0	21.1	26.5	24.1	28.2	25.6
		kW	2.74		2.90		3.06		3.18		3.23	
	1600	TC	15.1	14.0	19.1	17.6	23.5	21.5	26.9	24.5	28.7	26.0
		kW	2.79		2.94		3.09		3.19		3.25	
	1800	TC	15.5	14.3	19.4	17.9	23.8	21.9	27.3	24.9	29.0	26.3
		kW	2.82		2.97		3.10		3.20		3.25	
70	1400	TC	13.6	12.6	17.7	16.3	22.1	20.3	25.5	23.2	27.3	24.7
		kW	2.88		3.11		3.31		3.44		3.51	
	1600	TC	14.0	13.0	18.2	16.7	22.6	20.7	26.0	23.7	27.8	25.2
		kW	2.94		3.16		3.34		3.46		3.52	
	1800	TC	14.3	13.3	18.5	17.0	22.9	21.0	26.4	24.0	28.1	25.5
		kW	2.98		3.18		3.35		3.47		3.52	
80	1400	TC	12.3	11.3	16.6	15.2	21.0	19.3	24.4	22.2	26.1	23.7
		kW	3.00		3.30		3.55		3.71		3.79	
	1600	TC	12.7	11.7	17.0	15.7	21.6	19.8	24.9	22.7	26.7	24.2
		kW	3.06		3.35		3.59		3.74		3.80	
	1800	TC	13.0	12.0	17.4	16.0	21.9	20.1	25.2	23.0	27.1	24.6
		kW	3.10		3.38		3.60		3.74		3.81	

HEATING EXTENDED PERFORMANCE TABLE 30–60

50SZ048 (4 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			30		40		47		50		60	
60	1400	TC	34.7	30.4	41.9	41.9	47.5	47.5	49.9	49.9	58.2	58.2
		kW	3.46		3.69		3.86		3.94		4.27	
	1600	TC	35.1	30.8	42.4	42.4	48.1	48.1	50.4	50.4	58.8	58.8
		kW	3.45		3.66		3.81		3.89		4.21	
	1800	TC	35.4	31.1	42.7	42.7	48.4	48.4	51.0	51.0	56.0	56.0
		kW	3.44		3.62		3.78		3.79		3.95	
70	1400	TC	33.7	29.6	40.9	40.9	46.4	46.4	48.7	48.7	57.0	57.0
		kW	3.76		4.03		4.23		4.32		4.65	
	1600	TC	34.3	30.0	41.4	41.4	47.0	47.0	49.3	49.3	57.6	57.6
		kW	3.76		4.00		4.17		4.26		4.57	
	1800	TC	34.6	30.3	41.7	41.7	47.4	47.4	49.7	49.7	58.0	58.0
		kW	3.75		3.97		4.13		4.20		4.52	
80	1400	TC	32.6	28.6	39.8	39.8	45.3	45.3	47.5	47.5	55.7	55.7
		kW	4.06		4.39		4.62		4.72		5.07	
	1600	TC	33.2	29.1	40.4	40.4	45.9	45.9	48.1	48.1	56.4	56.4
		kW	4.06		4.36		4.57		4.66		4.95	
	1800	TC	33.6	29.4	40.7	40.7	46.3	46.3	48.6	48.6	56.8	56.8
		kW	4.06		4.33		4.51		4.60		4.91	

See Legend and Notes on page 17. *At 75°F entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F entering dry bulb.

Performance data (cont)

COOLING EXTENDED PERFORMANCE TABLE

50SZ060 (5 TONS)

Temp (F) Air Ent Outdoor Coil (Edb)		Indoor Entering Air—CFM/BF											
		1750/0.07				2000/0.08				2250/0.09			
		Indoor Entering Air—Ewb (F)											
		62	63*	67	72	62	63*	67	72	62	63*	67	72
75	TC	55.3	56.1	60.7	66.2	57.0	57.4	62.0	67.0	58.7	58.5	62.9	67.7
	SHC	50.3	40.5	42.2	33.4	54.2	43.4	45.2	35.0	56.7	46.2	48.1	36.6
	kW	4.2	4.2	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.4	4.4
85	TC	53.1	53.9	58.3	64.0	54.8	55.2	59.6	65.1	56.8	56.1	60.6	65.8
	SHC	49.3	39.5	41.2	32.6	52.9	42.4	44.3	34.5	54.8	45.2	47.2	36.2
	kW	4.6	4.6	4.6	4.7	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.9
95	TC	50.8	51.4	55.8	61.5	52.7	52.6	57.0	62.5	54.7	53.6	58.0	63.3
	SHC	48.0	38.4	40.2	31.8	50.9	41.4	43.3	33.6	52.8	44.1	46.3	35.4
	kW	5.1	5.1	5.1	5.2	5.1	5.1	5.2	5.2	5.2	5.2	5.3	5.3
105	TC	48.2	48.6	53.0	58.8	50.5	49.8	54.2	59.8	52.4	50.7	55.1	60.6
	SHC	46.6	37.2	39.1	30.8	48.7	40.2	42.3	32.7	50.6	43.0	45.2	34.5
	kW	5.6	5.6	5.6	5.7	5.7	5.6	5.7	5.7	5.8	5.7	5.8	5.8
115	TC	45.8	45.5	49.9	55.8	48.0	46.6	51.0	56.8	49.8	47.6	52.0	57.6
	SHC	44.2	35.9	37.9	29.8	46.3	38.8	41.1	31.8	48.1	41.6	44.0	33.6
	kW	6.1	6.1	6.2	6.2	6.2	6.2	6.2	6.3	6.3	6.3	6.3	6.4
125	TC	43.1	42.1	46.5	52.5	45.2	43.2	47.6	53.5	47.0	44.1	48.5	54.2
	SHC	41.7	34.5	36.6	28.7	43.7	37.4	39.7	30.7	45.4	40.1	42.6	32.5
	kW	6.7	6.7	6.7	6.8	6.8	6.7	6.8	6.9	6.9	6.9	6.9	7.0

HEATING EXTENDED PERFORMANCE TABLE -10–20

50SZ060 (5 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			-10		0		10		17		20	
60	1400	TC	14.7	13.6	18.6	17.1	23.0	21.1	26.5	24.1	28.2	25.6
		kW	2.74		2.90		3.06		3.18		3.23	
	1600	TC	15.1	14.0	19.1	17.6	23.5	21.5	26.9	24.5	28.7	26.0
		kW	2.79		2.94		3.09		3.19		3.25	
	1800	TC	15.5	14.3	19.4	17.9	23.8	21.9	27.3	24.9	29.0	26.3
		kW	2.82		2.97		3.10		3.20		3.25	
70	1400	TC	13.6	12.6	17.7	16.3	22.1	20.3	25.5	23.2	27.3	24.7
		kW	2.88		3.11		3.31		3.44		3.51	
	1600	TC	14.0	13.0	18.2	16.7	22.6	20.7	26.0	23.7	27.8	25.2
		kW	2.94		3.16		3.34		3.46		3.52	
	1800	TC	14.3	13.3	18.5	17.0	22.9	21.0	26.4	24.0	28.1	25.5
		kW	2.98		3.18		3.35		3.47		3.52	
80	1400	TC	12.3	11.3	16.6	15.2	21.0	19.3	24.4	22.2	26.1	23.7
		kW	3.00		3.30		3.55		3.71		3.79	
	1600	TC	12.7	11.7	17.0	15.7	21.6	19.8	24.9	22.7	26.7	24.2
		kW	3.06		3.35		3.59		3.74		3.80	
	1800	TC	13.0	12.0	17.4	16.0	21.9	20.1	25.2	23.0	27.1	24.6
		kW	3.10		3.38		3.60		3.74		3.81	

HEATING EXTENDED PERFORMANCE TABLE 30–60

50SZ060 (5 TONS)

Temp (F)	Indoor Air Cfm (std)		Air Temperature Entering Outdoor Coil (F db at 70% rh)									
Air Ent Indoor Coil			30		40		47		50		60	
60	1400	TC	34.7	30.4	41.9	41.9	47.5	47.5	49.9	49.9	58.2	58.2
		kW	3.46		3.69		3.86		3.94		4.27	
	1600	TC	35.1	30.8	42.4	42.4	48.1	48.1	50.4	50.4	58.8	58.8
		kW	3.45		3.66		3.81		3.89		4.21	
	1800	TC	35.4	31.1	42.7	42.7	48.4	48.4	51.0	51.0	56.0	56.0
		kW	3.44		3.62		3.78		3.79		3.95	
70	1400	TC	33.7	29.6	40.9	40.9	46.4	46.4	48.7	48.7	57.0	57.0
		kW	3.76		4.03		4.23		4.32		4.65	
	1600	TC	34.3	30.0	41.4	41.4	47.0	47.0	49.3	49.3	57.6	57.6
		kW	3.76		4.00		4.17		4.26		4.57	
	1800	TC	34.6	30.3	41.7	41.7	47.4	47.4	49.7	49.7	58.0	58.0
		kW	3.75		3.97		4.13		4.20		4.52	
80	1400	TC	32.6	28.6	39.8	39.8	45.3	45.3	47.5	47.5	55.7	55.7
		kW	4.06		4.39		4.62		4.72		5.07	
	1600	TC	33.2	29.1	40.4	40.4	45.9	45.9	48.1	48.1	56.4	56.4
		kW	4.06		4.36		4.57		4.66		4.95	
	1800	TC	33.6	29.4	40.7	40.7	46.3	46.3	48.6	48.6	56.8	56.8
		kW	4.06		4.33		4.51		4.60		4.91	

See Legend and Notes on page 17. *At 75°F entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F entering dry bulb.

Performance data (cont)

ECONOMIZER 1-in. FILTER PRESSURE DROP (in. wg)

UNIT50SZ	PRESSURE DROP
024-030	0.20
036-060	0.25

MULTIPLICATION FACTORS

HEATER kW RATING	VOLTAGE DISTRIBUTION V/3/60	MULTIPLICATION FACTOR
240	200 208 230 240	.69 .75 .92 1.00

Example: 20 kW (at 240v) heater on 230v
= 20.0 (.92 mult factor)
= 18.4 kW capacity at 230 v

LEGEND
BF—Bypass Factor
Ewb—Entering Wet-Bulb
kW—Total Unit Power Input
SHC—Sensible Heat Capacity (1000 Btuh)
TC—Total Capacity (1000 Btuh) (net)
Edb—Entering Dry-Bulb
rh—Relative Humidity
cates Integrated Ratings

NOTES:
1. Ratings are net; they account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. The following formulas may be used:

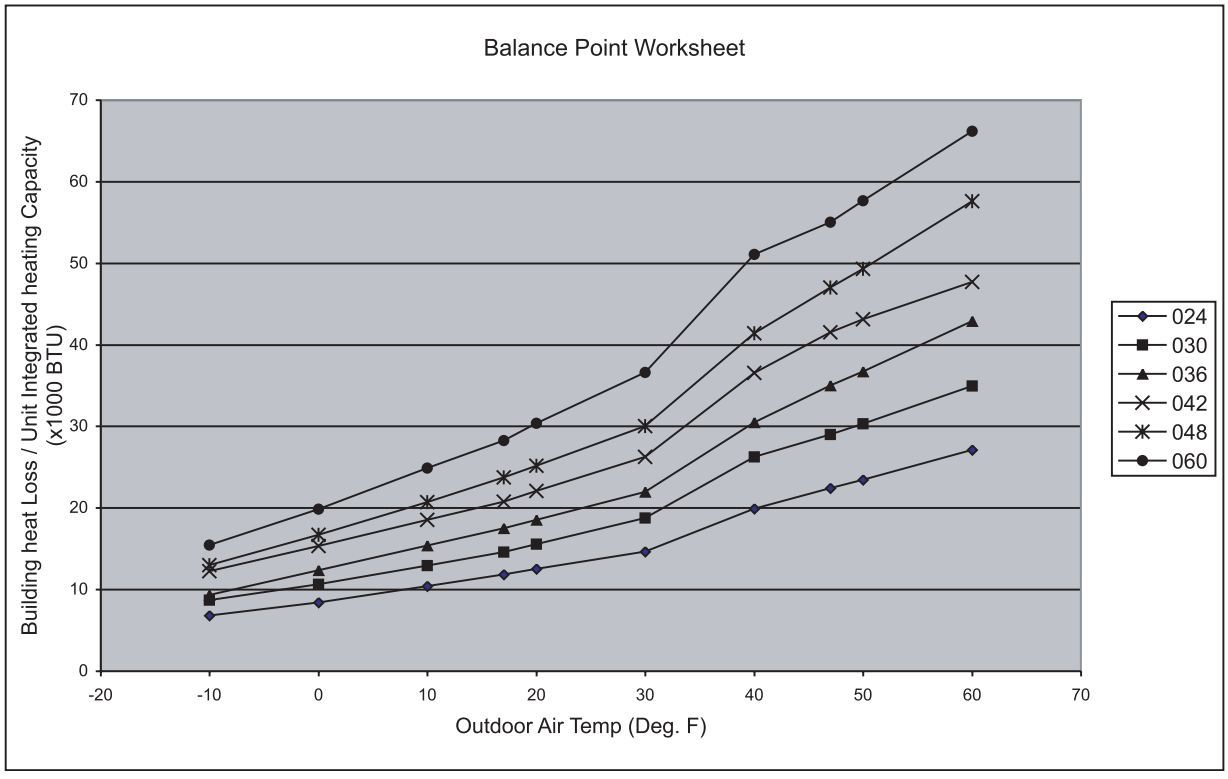
$$t_{ldb} = t_{edb} - \frac{\text{sensible capacity (Btuh)}}{1.10 \times \text{cfm}}$$

t_{lwb} = Wet-bulb temperature corresponding to enthalpy of air leaving evaporator coil (h_{lwb})

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

4. The SHC is based on 80 F edb temperature of air entering evaporator coil. Below 80 F edb, subtract (corr factor x cfm) from SHC. *Above 80 F edb, add (corr factor x cfm) to SHC.* Correction Factor = 1.10 x (1 – BF) x (edb – 80).
5. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.



WET COIL AIR DELIVERY UNIT 50SZ024-060*

230 VOLT

Unit 50SZ	Motor Speed		External Static Pressure (in.wg)									
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
024	LO	Watts	311	309	304	301	286	—	—	—	—	—
		C.F.M.	935	885	820	757	686	—	—	—	—	—
	MED	Watts	—	—	—	—	379	357	357	345	—	—
		C.F.M.	—	—	—	—	957	868	769	647	—	—
	HI	Watts	—	—	—	—	—	—	447	435	421	—
		C.F.M.	—	—	—	—	—	—	970	853	712	—
030	LO	Watts	311	309	304	301	—	—	—	—	—	—
		C.F.M.	935	885	820	757	—	—	—	—	—	—
	MED	Watts	411	405	398	390	379	357	357	—	—	—
		C.F.M.	1195	1155	1100	1028	957	868	769	—	—	—
	HI	Watts	—	—	—	—	477	467	447	435	—	—
		C.F.M.	—	—	—	—	1185	1088	970	853	—	—
036	LO	Watts	437	433	424	417	403	391	379	362	—	—
		C.F.M.	1353	1318	1283	1235	1187	1123	1059	975	—	—
	MED	Watts	—	—	—	531	516	496	478	459	435	—
		C.F.M.	—	—	—	1489	1437	1362	1289	1208	1099	—
	HI	Watts	—	—	—	—	—	—	—	629	602	—
		C.F.M.	—	—	—	—	—	—	—	1470	1357	—
042	LO	Watts	625	606	586	571	550	534	509	483	457	—
		C.F.M.	1539	1496	1466	1437	1387	1330	1264	1183	1093	—
	MED	Watts	—	741	715	694	669	645	610	573	544	—
		C.F.M.	—	1738	1698	1653	1604	1538	1457	1362	1271	—
	HI	Watts	—	—	—	—	—	798	772	738	700	—
		C.F.M.	—	—	—	—	—	1720	1648	1540	1414	—
048	LO	Watts	627	617	607	584	567	548	528	503	—	—
		C.F.M.	1550	1530	1493	1461	1414	1361	1320	1250	—	—
	MED	Watts	771	755	734	711	690	665	639	607	572	—
		C.F.M.	1798	1771	1734	1687	1645	1595	1530	1449	1355	—
	HI	Watts	—	—	908	887	858	827	804	767	748	—
		C.F.M.	—	—	2000	1944	1876	1811	1735	1647	1555	—
060	LO	Watts	786	769	754	736	722	705	684	658	—	—
		C.F.M.	2099	2028	1966	1883	1818	1751	1671	1563	—	—
	MED	Watts	873	849	833	815	798	782	763	748	—	—
		C.F.M.	2095	2026	1962	1887	1817	1748	1679	1583	—	—
	HI	Watts	1012	993	981	963	948	927	904	886	—	—
		C.F.M.	2109	2036	1963	1886	1812	1729	1647	1646	—	—

*Air delivery values are based on operating voltage of 230 v, wet coil, without filter or electric heater. Deduct filter and electric heater pressure drops to obtain static pressure available for ducting.

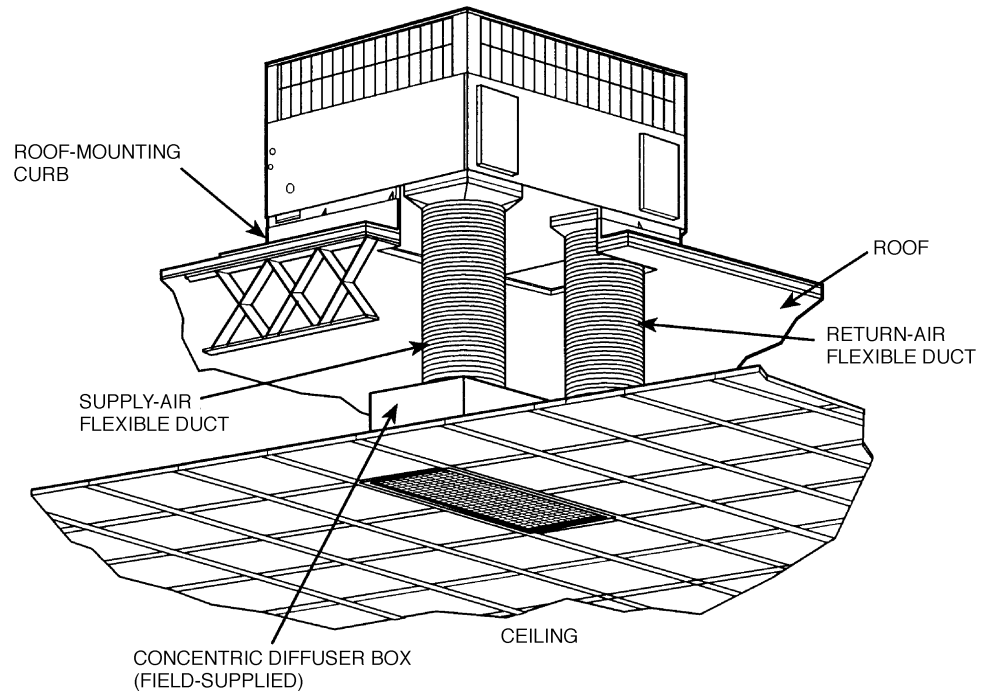
NOTES:

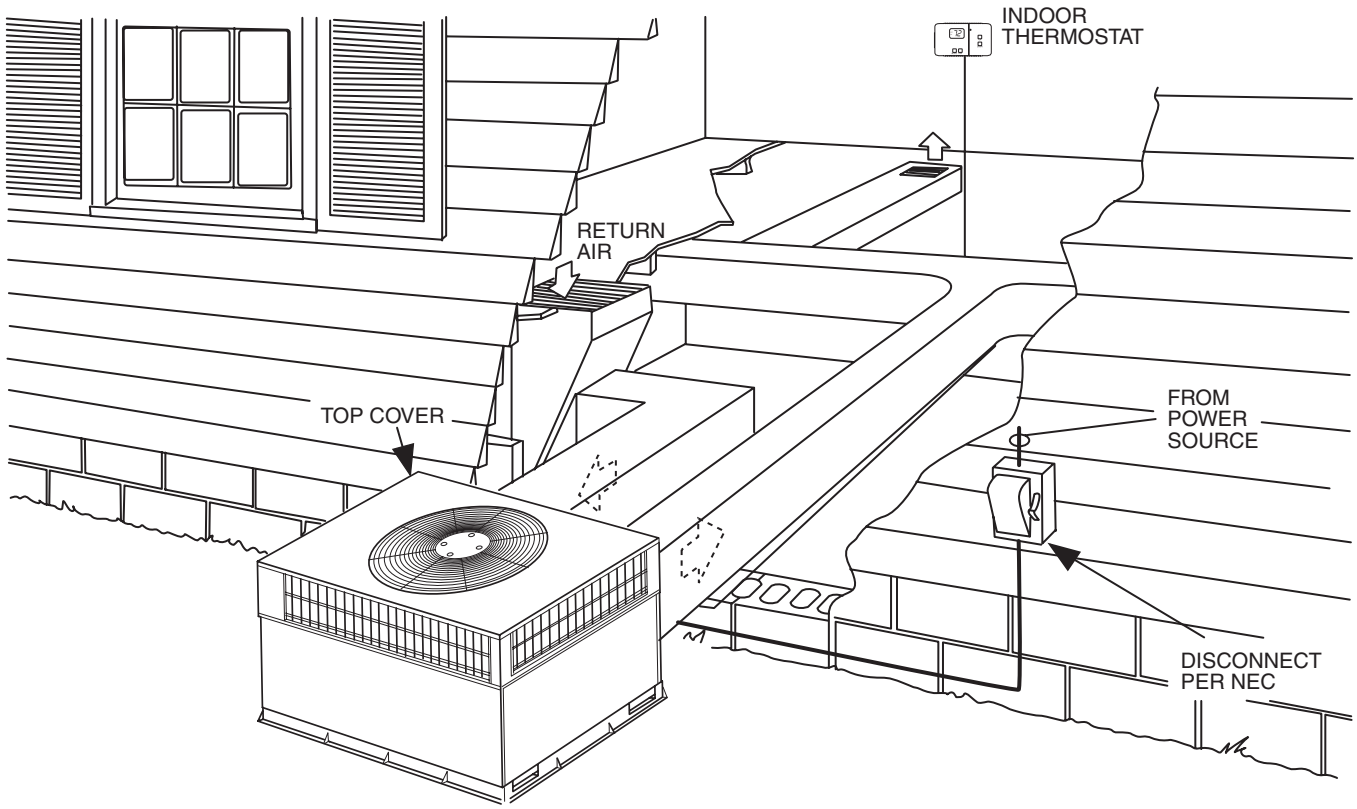
1. Do not operate the unit at a cooling airflow that is less than 350 cfm for each 12,000 Btuh of rated cooling capacity. Evaporator coil frosting may occur at airflows below this point.
2. Dashes indicate portions of table that are beyond the blower motor capacity or are not recommended.
3. Deduct 10% for 208v.

FILTER PRESSURE DROP (In. wg)

UNIT SIZE 50SZ	FILTER SIZE	CFM																		
		500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300
024, 030	20 X 20 X 1	0.05	0.07	0.08	0.10	0.12	0.13	0.14	0.15	—	—	—	—	—	—	—	—	—	—	—
36	20 X 24 X 1	—	—	—	—	0.09	0.10	0.11	0.13	0.14	0.15	0.16	—	—	—	—	—	—	—	—
042, 048, 060	24 X 30 X 1	—	—	—	—	—	—	—	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18

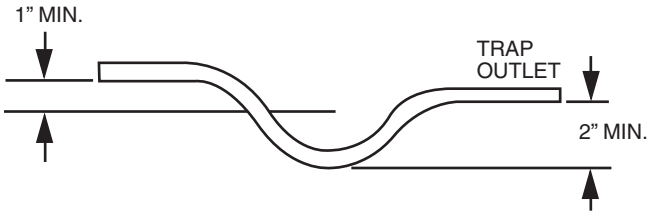
Typical piping and wiring





Application data

Condensate trap — A 2-in. condensate trap must be field supplied.



Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory-installed inserts in the downflow openings. Remove the inserts similar to removing an electrical knock-out.

Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 cfm/ton.

Minimum cooling airflow — The minimum cooling airflow is 350 cfm/ton.

Minimum cooling ambient operating temperature — All standard units have a minimum ambient operating temperature of 40°F. With accessory low ambient temperature kit, units can operate at temperatures down to 0°F.

Electrical Data

UNIT SIZE 50SZ	V-PH-Hz	VOLTAGE RANGE		COMPRESSOR		OUTDOOR FAN MOTOR	INDOOR FAN MOTOR	ELECTRIC HEAT		POWER SUPPLY		
		Min	Max	RLA	LRA	FLA	FLA	Nominal kW*	FLA	MCA	Max Fuse or Ckt Bkr	MOCP
024	208/230-1-60	187	253	10.9	54.0	0.9	2.0	—	—	16.5/16.5	20/20	—
								3.8/5	18.1/20.8	25.1/28.5	30/30	—
								7.5/10	36.1/41.7	47.6/54.6	50/60	—
								5.4/7.2	26/30	35.0/40.0	35/40	—
030	208/230-1-60	187	253	14.0	72.5	0.9	2.0	—	—	20.4/20.4	25/25	—
								3.8/5	18.1/20.8	25.1/28.5	25/30	—
								7.5/10	36.1/41.7	47.6/54.6	50/60	—
								11.3/15	54.2/62.5	70.2/80.6	—	80/90
								5.4/7.2	26/30	35.0/40.0	35/40	—
036	208/230-1-60	187	253	16.0	88.0	0.9	3.1	—	—	24.0/24.0	30/30	—
								3.8/5	18.1/20.8	26.4/29.9	30/30	—
								7.5/10	36.1/41.7	49.0/56.0	50/60	—
								11.3/15	54.2/62.5	71.6/82.0	—	80/90
								5.4/7.2	26/30	36.4/41.4	40/45	—
042	208/230-1-60	187	253	18.4	104.0	0.9	4.1	—	—	28.0/28.0	35/35	—
								3.8/5	18.1/20.8	28.0/31.2	35/35	—
								7.5/10	36.1/41.7	50.3/57.2	60/60	—
								11.3/15	54.2/62.5	72.8/83.3	—	80/90
								15/20	72.2/83.3	95.4/109.3	—	100/110
								5.4/7.2	26/30	37.6/42.6	40/45	—
048	208/230-1-60	187	253	18.3	109.0	1.5	4.1	—	—	28.5/28.5	35/35	—
								3.8/5	18.1/20.8	28.5/31.2	35/35	—
								7.5/10	36.1/41.7	50.3/57.2	60/60	—
								11.3/15	54.2/62.5	72.8/83.3	—	80/90
								15/20	72.2/83.3	95.4/109.3	—	100/110
								5.4/7.2	26/30	37.6/42.6	40/45	—
060	208/230-1-60	187	253	25.0	148.0	1.5	6.2	—	—	39.0/39.0	50/50	—
								3.8/5	18.1/20.8	39.0/39.0	50/50	—
								7.5/10	36.1/41.7	52.9/59.8	60/60	—
								11.3/15	54.2/62.5	75.4/85.9	—	80/90
								15/20	72.2/83.3	98.0/111.9	—	100/125
								5.4/7.2	26/30	40.2/45.3	50/50	—

*Heater capacity (kW) based on heater voltage of 208v, 240v, & 480v. If power distribution voltage to unit varies from rated heater voltage, heater kW will vary accordingly.

Electrical Data Legend

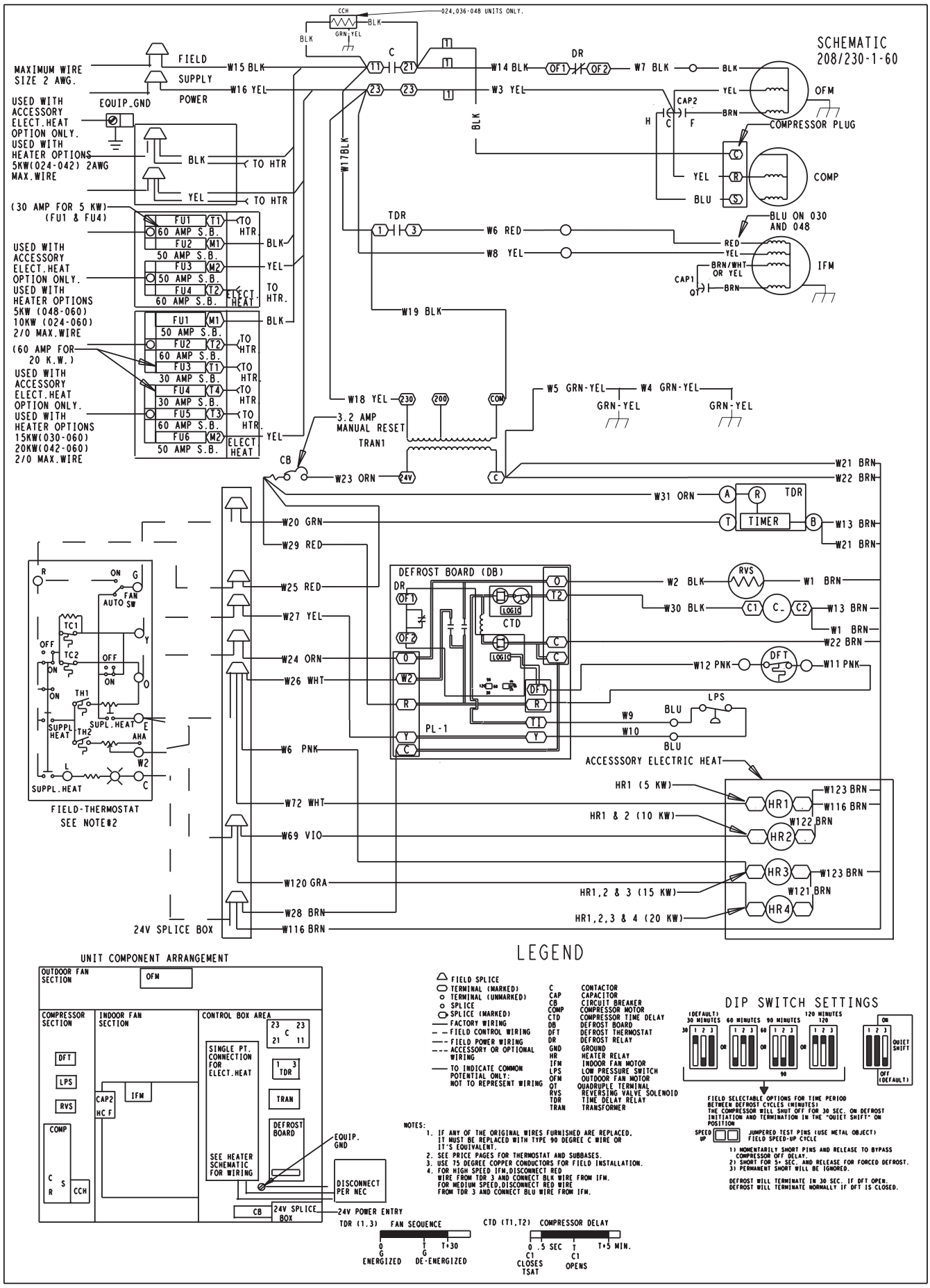
LEGEND

FLA	—	Full Load Amps
LRA	—	Locked Rotor Amps
MCA	—	Minimum Circuit Amps
MOCP	—	Maximum Overcurrent Protection
RLA	—	Rated Load Amps

*Heater capacity (KW) based on heater voltage of 208v, 240v, & 480v. If power distribution voltage to unit varies from rated heater voltage, heater KW will vary accordingly.

NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse. The CGA (Canadian Gas Association) units may be fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.


SCHEMATIC
208/230-1-60
024,036-048 UNITS ONLY.
MAXIMUM WIRE SIZE 2 AWG.
FIELD SUPPLY POWER
EQUIP GND
USED WITH ACCESSORY ELECT.HEAT OPTION ONLY. USED WITH HEATER OPTIONS 5KW(024-042) 2AWG MAX.WIRE
(30 AMP FOR 5 KW) (FU1 & FU4)
USED WITH ACCESSORY ELECT.HEAT OPTION ONLY. USED WITH HEATER OPTIONS 5KW (048-060) 10KW (024-060) 2/0 MAX.WIRE
(60 AMP FOR 20 K.W.)
USED WITH ACCESSORY ELECT.HEAT OPTION ONLY. USED WITH HEATER OPTIONS 15KW(030-060) 20KW(042-060) 2/0 MAX.WIRE
TO HTR
ELECT. HEAT
3.2 AMP MANUAL RESET
TRAN1
CB
DR
TDR
CAP1
CAP2
OFM
COMP
IFM
COMPRESSOR PLUG
BLU ON 030 AND 048
BRN/WHT OR YEL
DEFROST BOARD (DB)
CTD
PL-1
RVS
DFT
LPS
TIMER
FAN AUTO SW
FIELD-THERMOSTAT SEE NOTE#2
ACCESSSORY ELECTRIC HEAT
HR1 (5 KW)
HR1 & 2 (10 KW)
HR1,2 & 3 (15 KW)
HR1,2,3 & 4 (20 KW)
24V SPLICE BOX
UNIT COMPONENT ARRANGEMENT
OUTDOOR FAN SECTION
COMPRESSOR SECTION
INDOOR FAN SECTION
CONTROL BOX AREA
SINGLE PT. CONNECTION FOR ELECT.HEAT
SEE HEATER SCHEMATIC FOR WIRING
DISCONNECT PER NEC
24V POWER ENTRY
LEGEND
FIELD SPLICE
TERMINAL (MARKED)
TERMINAL (UNMARKED)
SPLICE
SPLICE (MARKED)
FACTORY WIRING
FIELD CONTROL WIRING
FIELD POWER WIRING
ACCESSORY OR OPTIONAL WIRING
TO INDICATE COMMON POTENTIAL ONLY: NOT TO REPRESENT WIRING
C CONTACTOR
CAP CAPACITOR
CB CIRCUIT BREAKER
COMP COMPRESSOR MOTOR
CTD COMPRESSOR TIME DELAY
DB DEFROST BOARD
DFT DEFROST THERMOSTAT
DR DEFROST RELAY
GND GROUND
HR HEATER RELAY
IFM INDOOR FAN MOTOR
LPS LOW PRESSURE SWITCH
OFM OUTDOOR FAN MOTOR
QT QUADRUPLE TERMINAL
RVS REVERSING VALVE SOLENOID
TDR TIME DELAY RELAY
TRAN TRANSFORMER
NOTES:
1. IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED, IT MUST BE REPLACED WITH TYPE 90 DEGREE C WIRE OR IT'S EQUIVALENT.
2. SEE PRICE PAGES FOR THERMOSTAT AND SUBBASES.
3. USE 75 DEGREE COPPER CONDUCTORS FOR FIELD INSTALLATION.
4. FOR HIGH SPEED IFM, DISCONNECT RED WIRE FROM TDR 3 AND CONNECT BLK WIRE FROM IFM. FOR MEDIUM SPEED, DISCONNECT RED WIRE FROM TDR 3 AND CONNECT BLU WIRE FROM IFM.
DIP SWITCH SETTINGS
(DEFAULT) 30 MINUTES
60 MINUTES
90 MINUTES
120 MINUTES
QUIET SHIFT
FIELD SELECTABLE OPTIONS FOR TIME PERIOD BETWEEN DEFROST CYCLES (MINUTES) THE COMPRESSOR WILL SHUT OFF FOR 30 SEC. ON DEFROST INITIATION AND TERMINATION IN THE "QUIET SHIFT" ON POSITION
SPEED UP
JUMPERED TEST PINS (USE METAL OBJECT) FIELD SPEED-UP CYCLE
1) MOMENTARILY SHORT PINS AND RELEASE TO BYPASS COMPRESSOR OFF DELAY.
2) SHORT FOR 5+ SEC. AND RELEASE FOR FORCED DEFROST.
3) PERMANENT SHORT WILL BE IGNORED.
DEFROST WILL TERMINATE IN 30 SEC. IF DFT OPEN. DEFROST WILL TERMINATE NORMALLY IF DFT IS CLOSED.
TDR (1,3) FAN SEQUENCE
ENERGIZED
DE-ENERGIZED
CTD (T1,T2) COMPRESSOR DELAY
CLOSES TSAT
OPENS

Controls

Sequence of operation

When power is supplied to unit, the transformer (TRAN) is energized.

On units with crankcase heater, heater is also energized.

Cooling — With the thermostat subbase in the cooling position, the thermostat makes circuit R-O. This energizes the reversing valve solenoid (RVS) and places the unit in standby condition for cooling.

As the space temperature rises, the thermostat makes, closing circuit R-Y. A circuit is made to contactor (C), starting the compressor (COMP) and outdoor-fan motor (OFM). Circuit R-G is made at the same time, energizing the indoor-fan relay (IFR) and starting the indoor-fan motor (IFM) after a 1-second delay.

When the thermostat is satisfied, contacts open, deenergizing C. The COMP and OFM stop, and the IFM stops after a 30 second time delay.

Heating — On a call for heat, thermostat makes circuits R-Y and R-G.

A circuit is made to C, starting COMP and OFM. Circuit R-G also is completed, energizing IFR and starting IFM after a 1-second delay.

Should room temperature continue to fall, circuit R-W is made through second-stage thermostat bulb. If optional electric heat package is used, a relay is energized, bringing on first bank of supplemental electric heat. When thermostat is satisfied, contacts open, deenergizing contactor and relay; motors and heaters deenergize. The IFM is controlled by a time-delay relay that keeps the fan on for 30 seconds.

Defrost — Defrost board (DB) is a time and temperature control, which includes a field-selectable time period between checks for defrost (30, 60, 90, and 120 minutes). Electronic timer and defrost cycle start only when contactor is energized and defrost thermostat (DFT) is closed.

Defrost mode is identical to cooling mode, except outdoor fan motor stops and a bank of optional electric heat turns on to warm air supplying the conditioned space.

NOTES:

1. Compressor time delay occurs through the defrost control board.

2. Defrost control board has built in 5 minute compressor delay: once the compressor has started and then stopped, it cannot be restarted again until 5 minutes have elapsed.

Guide specifications

Packaged Heat Pumps
Constant Volume Application

HVAC Guide Specifications
Size Range: **2 to 5 Tons, Nominal Cooling**
Carrier Model Number: **50SZ**

Part 1—General

SYSTEM DESCRIPTION

Outdoor packaged air to air heat pump unit utilizing a hermetic compressor for cooling duty and optional electric heating. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Outdoor fan/coil section shall have a draw-thru design with vertical discharge for minimum sound levels.

QUALITY ASSURANCE

A. Unit shall be rated in accordance with ARI Standards 210/240-03 and 270-95.
B. Unit shall be designed in accordance with UL Standard 1995.
C. Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.
D. Unit shall be UL listed and c-UL certified as a total package for safety requirements.
E. Roof curb shall be designed to conform to NRCA Standards.
F. Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.
G. Cabinet insulation shall meet ASHRAE Standard 62P.

DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations.

Part 2 — Products

EQUIPMENT

A. General:
Factory-assembled, single-piece, heat pump unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-22), and special features required prior to field start-up.
B. Unit Cabinet:
1. Unit cabinet shall be constructed of phosphated, zinc-coated, pre-painted steel capable of withstanding 500 hours of salt spray.
2. Normal service shall be through a single removable cabinet panel.
3. The unit shall be constructed on a rust proof unit base that has an externally trapped, integrated sloped drain.
4. Indoor fan compartment top surface shall be insulated with a minimum 1/2-in. thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The indoor wall sections will be insulated with a minimum semi-rigid foil-faced board capable of being wiped clean. Aluminum foil-faced fiberglass insulation shall be used in the entire indoor air cavity section.
5. Unit shall have a field-supplied condensate trap.
6. Metal Insulated Duct Covers for side discharge will be standard on all sizes.
7. Unit Insulation conforms to ASHRAE 62P.

C. Fans:
1. The indoor fan shall be 3-speed, direct-drive, as shown on equipment drawings.
2. Fan wheel shall be made from steel and shall be double-inlet type with forward curved blades with corrosion resistant finish. Fan wheel shall be dynamically balanced.
3. Outdoor fan shall be direct drive propeller type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

D. Compressor:
1. Fully hermetic compressors with factory-installed vibration isolation.
2. Scroll compressors shall be standard on all units.
3. Compressor Protection:
Defrost control shall protect compressor by preventing "short cycling."

E. Coils:
Indoor and outdoor coils shall have aluminum plate fins mechanically bonded to seamless copper tubes with all joints brazed. (Copper/copper and vinyl-coated construction available as option.) Tube sheet openings shall be belled to prevent tube wear.

F. Refrigerant Metering Device:
Refrigerant metering device shall be of the fixed orifice feed type.

G. Filters:
Filter section shall consist of field-installed, throw-away, 1-in. thick fiberglass filters of commercially available sizes.

H. Controls and Safeties:
1. Unit controls shall be complete with a self-contained, low voltage control circuit.
2. Units shall incorporate an internal compressor protector that provides reset capability.

I. Operating Characteristics:
1. Unit shall be capable of starting and running at 125°F ambient outdoor temperature per maximum load criteria of ARI Standard 240-94.
2. Compressor with standard controls shall be capable of operation down to 40°F ambient outdoor temperature in cooling mode.
3. Unit shall be provided with 30-second fan time delay after the thermostat is satisfied.

J. Electrical Requirements:
All unit power wiring shall enter the unit cabinet at a single location.

K. Motors:
1. Compressor motors shall be of the refrigerant-cooled type with line-break thermal and current overload protection.

Guide specifications (cont)

2. All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.
3. Condenser fan motor shall be totally enclosed.

L. Special Features Available:

1. Louvered Grille:
   Wire grille shall be standard on all units. Louvered grille shall be available as a factory-installed option to provide hail guard and vandalism protection.
2. Coil Options:
   Shall include factory-installed optional copper/copper and vinyl-coated refrigerant coils.
3. Economizer:
   a. Economizer controls capable of providing free cooling using outside air.
   b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 in. wg pressure differential.
   c. Spring return motor shuts off outdoor damper on power failure.
4. Flat Roof Curb:
   Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
5. Manual Outdoor Air Damper:
   Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year-round ventilation.
6. Thermostat:
   To provide for one-stage heating and cooling in addition manual or automatic changeover and indoor fan control.
7. Low Ambient Package:
   Shall consist of a solid-state control and outdoor coil temperature sensor for controlling outdoor-fan motor operation, which shall allow unit to operate down to 0° F outdoor ambient temperature.
8. Filter Rack Kit:
   Shall provide filter mounting for downflow applications.
9. Controls Upgrade Kit:
   Shall provide high and low pressure safety protection.
10. Square-To-Round Duct Transitions (024-048):
    Shall have the ability to convert the supply and return openings from rectangular to round.
11. Crankcase Heater:
    Shall provide anti-floodback protection for low-load cooling applications.
12. Electric heaters:
    a. Electric heater shall be available as a field-installed option.
    b. Heater elements shall be open wire type, adequately supported and insulated with ceramic bushings.
    c. Electric heater packages must provide single point power connection capability.

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